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For general information, please call:
1-888-4-ON-THE-GO.

For Technical Support, please call:
1-800-8-FUJITSU.



DECLARATION OF CONFORMITY according to FCC Part 15

Responsible Party Name: Fujitsu PC Corporation

Address: 598 Gibraltar Drive
Milpitas, CA 95035

Telephone: (408) 935-8800

Declares that product: Model: LifeBook C-4120
C-5130
C-6320
C-6330

Complies with Part 15
of the FCC Rules.

This device complies with Part 15 of the FCC rules. Operations is subject to the following two conditions: (1) This device must not be allowed to cause harmful interference, (2) This device must accept any interference received, including interference that may cause undesired operation.

David Woo
FULL NAME

Fujitsu
COMPANY

6/11/99
DATE



CAUTION

Changes or modifications not expressly approved by Fujitsu PC Corporation could void this user's authority to operate the equipment.

FCC NOTICES

Notice to Users of Radios and Television

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet that is on a different circuit than the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device.

Notice to Users of the US Telephone Network

The LifeBook™ C Series notebook computers are supplied with an internal modem which complies with Part 68 of the FCC rules. On this notebook is a label that contains the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment among other information. If requested, the user must provide their telephone company with the following information:

1. The telephone number to which the notebook is connected.
2. The Ringer Equivalence Number (REN) for this equipment.
3. That the equipment requires a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant.
4. The FCC Registration Number.

This equipment is designed to be connected to the telephone network or premises wiring using a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant and a line cord between the modem and the telephone network with a minimum of 26AWG.

The REN is used to determine the number of devices that you may connect to your telephone line and still have all of those devices ring when your number is called. Too many devices on one line may result in failure to ring in response to an incoming call. In most, but not all, areas the sum of the RENs of all of the devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the RENs, contact your local telephone company.

If this equipment causes harm to the telephone network, your telephone company may discontinue your service temporarily. If possible, they will notify you in advance. If advance notice is not practical they will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC.

This fax modem also complies with fax branding requirements per FCC Part 68.

Your telephone company will probably ask you to disconnect this equipment from the telephone network until the problem is corrected and you are sure that the equipment is not malfunctioning. This equipment may not be used on coin service telephones provided by your telephone company. Connection to party lines is subject to state tariffs. Contact your state's public utility commission, public service commission or corporation commission for more information.

This equipment includes automatic dialing capability. When programming and/or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in off-peak hours, such as early morning or late evening.

FCC rules prohibit the use of non-hearing aid compatible telephones in the following locations or applications:

- All public or semipublic coin-operated or credit card telephones.
- Elevators, highways, tunnels (automobile, subway, railroad or pedestrian) where a person with impaired hearing might be isolated in an emergency.
- Places where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.
- Hospital rooms, residential health care facilities, convalescent homes and prisons.
- Workstations for the hearing impaired.
- Hotel, motel or apartment lobbies.
- Stores where telephones are used by patrons to order merchandise.

- Public transportation terminals where telephones are used to call taxis or to reserve lodging or rental cars.
- In hotel and motel rooms as at least ten percent of the rooms must contain hearing aid compatible telephones or jacks for plug-in hearing aid compatible telephones which will be provided to hearing impaired customers on request.

DOC (INDUSTRY CANADA) NOTICES

Notice to Users of Radios and Television

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

CET appareil numérique de la class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Notice to Users of the Canadian Telephone Network

The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

The LifeBook C Series notebook computers are supplied with an internal modem which complies with the Industry Canada certification standards for telecommunication network protection and safety requirements. Before connecting this equipment to a telephone line the user should ensure that it is permissible to connect this equipment to the local telecommunication facilities. The user should be aware that compliance with the certification standards does not prevent service degradation in some situations.

Repairs to telecommunication equipment should be made by a Canadian authorized maintenance facility. Any repairs or alterations not expressly approved by Fujitsu™ PC Corporation or any equipment failures may give the telecommunication company cause to request the user to disconnect the equipment from the telephone line.

The connecting arrangement code for this equipment is CA11A.

The Load Number is 0.2.

The Load Number assigned to each telephone terminal device denotes the percentage of the total load to be connected to a telephone loop or circuit which is used by the device to prevent overloading. The termination on a loop may consist of any combination of devices such that the total of the load numbers of all devices does not exceed 100.



CAUTION

For safety, users should ensure that the electrical ground of the power utility, the telephone lines and the metallic water pipes are connected together. Users should NOT attempt to make such connections themselves but should contact the appropriate electric inspection authority or electrician. This may be particularly important in rural areas.

Avis Aux Utilisateurs Du Réseau Téléphonique Canadien

L'étiquette canadienne Industrie Canada identifie l'équipement certifié. Cette certification signifie que l'équipement satisfait certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le département ne garantit pas le fonctionnement de l'équipement à la satisfaction de l'utilisateur.

La série LifeBook C possède un modem interne conforme aux normes de certification d'Industrie Canada pour protéger les réseaux de télécommunications et satisfaire aux normes de sécurité. Avant de connecter cet équipement à une ligne téléphonique, l'utilisateur doit vérifier s'il est permis de connecter cet équipement aux installations de télécommunications locales. L'utilisateur est averti que même la conformité aux normes de certification ne peut dans certains cas empêcher la dégradation du service.

Les réparations de l'équipement de télécommunications doivent être effectuées par un service de maintenance agréé au Canada. Toute réparation ou modification, qui n'est pas expressément approuvée par Fujitsu PC Corp.,

ou toute défaillance de l'équipement peut entraîner la compagnie de télécommunications à exiger que l'utilisateur déconnecte l'équipement de la ligne téléphonique.

Le code d'arrangement de connexion de cet équipement est CA11A.

Le numéro de charge est 0.2.

Le numéro de charge assigné à chaque terminal téléphonique indique le pourcentage de la charge totale pouvant être connecté à une boucle ou à un circuit téléphonique, utilisé par ce périphérique afin de prévenir toute surcharge. La terminaison d'une boucle peut être constituée de n'importe quelle combinaison de périphériques de sorte que le total de numéros de charge de tous les périphériques n'excède pas 100.



AVERTISSEMENT

Pour assurer la sécurité, les utilisateurs doivent vérifier que la prise de terre du service d'électricité, les lignes téléphoniques et les conduites d'eau métalliques sont connectées ensemble. Les utilisateurs NE doivent PAS tenter d'établir ces connexions eux-mêmes, mais doivent contacter les services d'inspection d'installations électriques appropriés ou un électricien. Ceci peut être particulièrement important en régions rurales.

UL NOTICE (FOR AUTHORIZED REPAIR TECHNICIANS ONLY)

CAUTION: For continued protection against risk of fire, replace only with the same type and rating fuse.

CAUTION: Danger of explosion if CMOS battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instruction.

WARNING: CMOS and NiCAD batteries may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

Black & White
of Cover
(to come)

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LifeBook C Series from Fujitsu

PREFACE

The LifeBook C Series from Fujitsu PC Corporation is a powerful notebook computer. It is powered by an Intel® Pentium® II or Celeron™ microprocessor, has an XGA or SVGA color TFT display, a built-in floppy drive, a CD-ROM drive or a DVD drive, and an internal 56K modem with v.90 support. The LifeBook C Series brings the computing power of desktop personal computers (PCs) to a portable environment.

This manual explains how to operate your LifeBook C Series' hardware and built-in system software. The LifeBook C Series is compatible with the IBM® PC AT. It comes with Windows® 98 SE pre-installed.

A LifeBook C Series notebook has a powerful interface that enables it to support a variety of optional features and software. (*Figure P-1.*)

CONVENTIONS USED IN THE GUIDE

Screen examples in this manual are intended as examples only, and screen and file names may differ in actual use.

Messages displayed by the LifeBook C Series appear in *Courier* type.

Example: Shutdown the computer?

Keyboard keys are shown in boldface

Helvetica type.

Example: **Fn**, **F1**, **Esc**, and **Ctrl**.

Pages with additional information about a specific topic are cross-referenced within the text.

Example: (*See page xx.*)



POINT

The point icon highlights information that will enhance your understanding of the subject material.



CAUTION

The caution icon highlights information that is important for your safety, the safe operation of your computer, or the integrity of your files. Please read all caution information carefully.

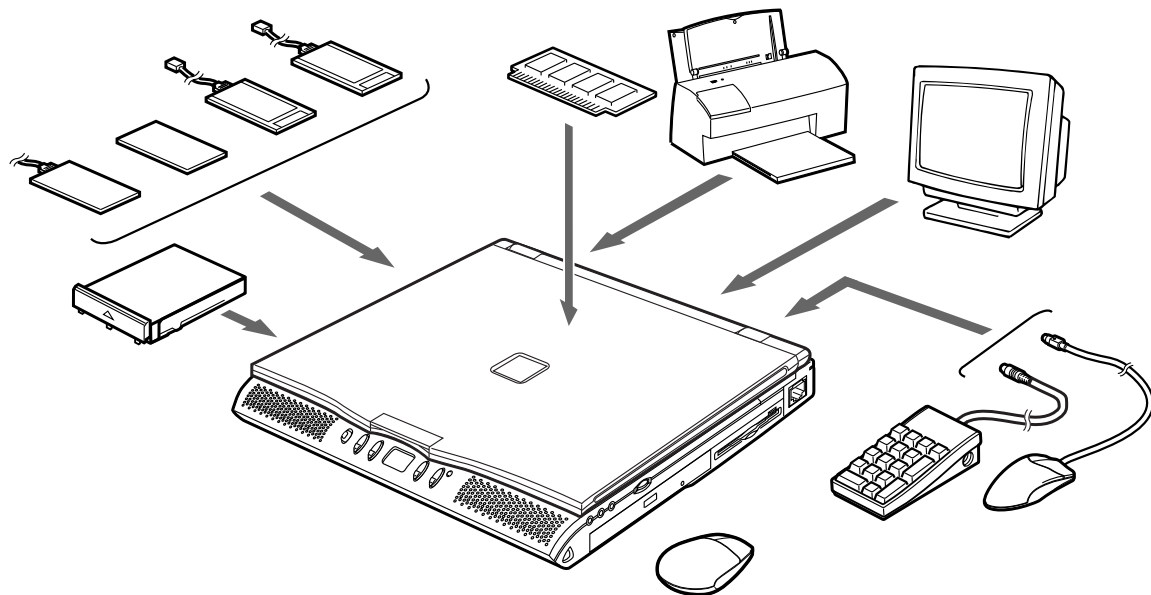


Figure P-1 LifeBook C Series
with Samples of Fujitsu and
Third Party Options and Accessories

Setting Up Your LifeBook C Series

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Section One

SETTING UP YOUR LIFEBOOK C SERIES FROM FUJITSU

This section describes how to set up your LifeBook C Series from Fujitsu. We strongly recommend that you read it before using your notebook – even if you are already familiar with notebook computers.

UNPACKING

When you receive your notebook, unpack it carefully, and compare the parts you have received with the items listed below.

For a Pre-configured model you should have:

- LifeBook C Series notebook from Fujitsu. (Figure 1-1.)
- Product Registration card.
- Lithium ion battery. (Already installed in the battery bay of your notebook.)

- AC adapter with AC power cord (located in the Accessories box). (Figure 1-2.)
- Phone/ Modem(RJ-11) telephone cable (located in the Accessories box).
- Getting Started Guide.
- Accessories Catalog.
- User's Guide.
- Microsoft Windows 98 SE Guide.
- Microsoft Works Guide.
- International Limited Warranty Brochure.
- Recovery CD-ROM (located in the Accessories box).
- Additional documentation.

Once you have checked and confirmed that your notebook system is complete, read through the following pages to learn about all of your LifeBook's components.

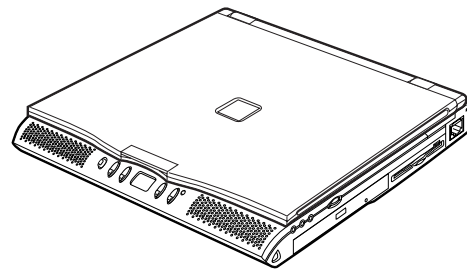


Figure 1-1 LifeBook C Series Notebook

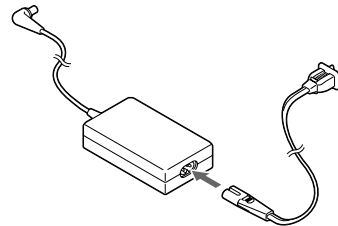


Figure 1-2 AC Adapter Unit

Setting Up Your LifeBook C Series

OVERVIEW OF LIFEBOOK C SERIES FEATURES

The LifeBook C Series is a compact, yet powerful notebook computer available with a variety of features, including: (See *Appendices, pages 92–94, for detailed information on pre-configured models. For other models please see your packing list.*)

- Latest high-speed Intel mobile processor.
- SDRAM system memory.
- Clear, bright TFT display.
- ATI RAGE video, 4MB of Video RAM.
- Built-in SMART hard drive.
- Lithium ion battery.
- Internal 56K fax/data/voice modem with V.90 support.
- DVD or CD-ROM drive.



CAUTION

The internal modem is designed to the ITU-T V.90 standard. Its maximum speed of 53000bps is the highest allowed by FCC, and its actual connection rate depends on the line conditions. The maximum speed is 33600bps at upload.



CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire notebook. Consult your PBX manufacturer's documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem.



CAUTION

The internal modem on all Fujitsu notebooks from Fujitsu PC Corporation are certified for use in the United States and Canada. The modem may be certified in other countries. Please access our website at www.8fujitsu.com for a list of the other world-wide locations where the internal modem has been certified.

- Full audio and video features:
 - 32-bit SoundBlaster Pro-compatible Yamaha sound chip.
 - 64 voice wavetable, Sensuara 3D positional sound.
 - Zoomed Video support for full motion video acceleration.

- Built-in Pioneer® stereo speakers.
- Built-in mono microphone.
- Stereo line in jack.
- Stereo headphone jack.
- Microphone jack.
- Combination PC card slot accommodates 2 Type II or 1 Type III cards.
- Integrated ErgoTrac™ pointing device for superb cursor control and comfort.
- External monitor support with simultaneous display capabilities.
- Full-size keyboard with three dedicated Windows keys.
- Hot swappable PS/2 port for external components.
- USB device support.
- Standard pre-installed software:
 - Microsoft Windows 98 SE operating system.
 - LapLink Professional for file transfers. (Cable not provided.)
 - Microsoft Works for business applications including word processing, spreadsheets and databases.
 - Quicken® Basic 99 for money management.
 - PC-Doctor for system diagnostics.
 - PMSet 98 for system power management.
 - McAfee® VirusScan for virus protection.
 - Adobe® Acrobat Reader.
 - Netscape® Communicator.
 - Microsoft Press Interactive Training. (Windows 98 SE)
 - DVD Player (units with DVD drive.)
- Standard user install software:
 - AOL.
 - CompuServe.™
 - Earthlink.



POINT

Windows 98 SE Second Edition comes pre-installed with Internet Explorer 5.0.



POINT

This unit does not come pre-installed with the Windows 95 or Windows NT operating systems. Windows 98 SE is the only operating system supported on your notebook.

Setting Up Your LifeBook C Series

COMPONENT IDENTIFICATION

For detailed specifications refer to Appendices on pages 92–94.

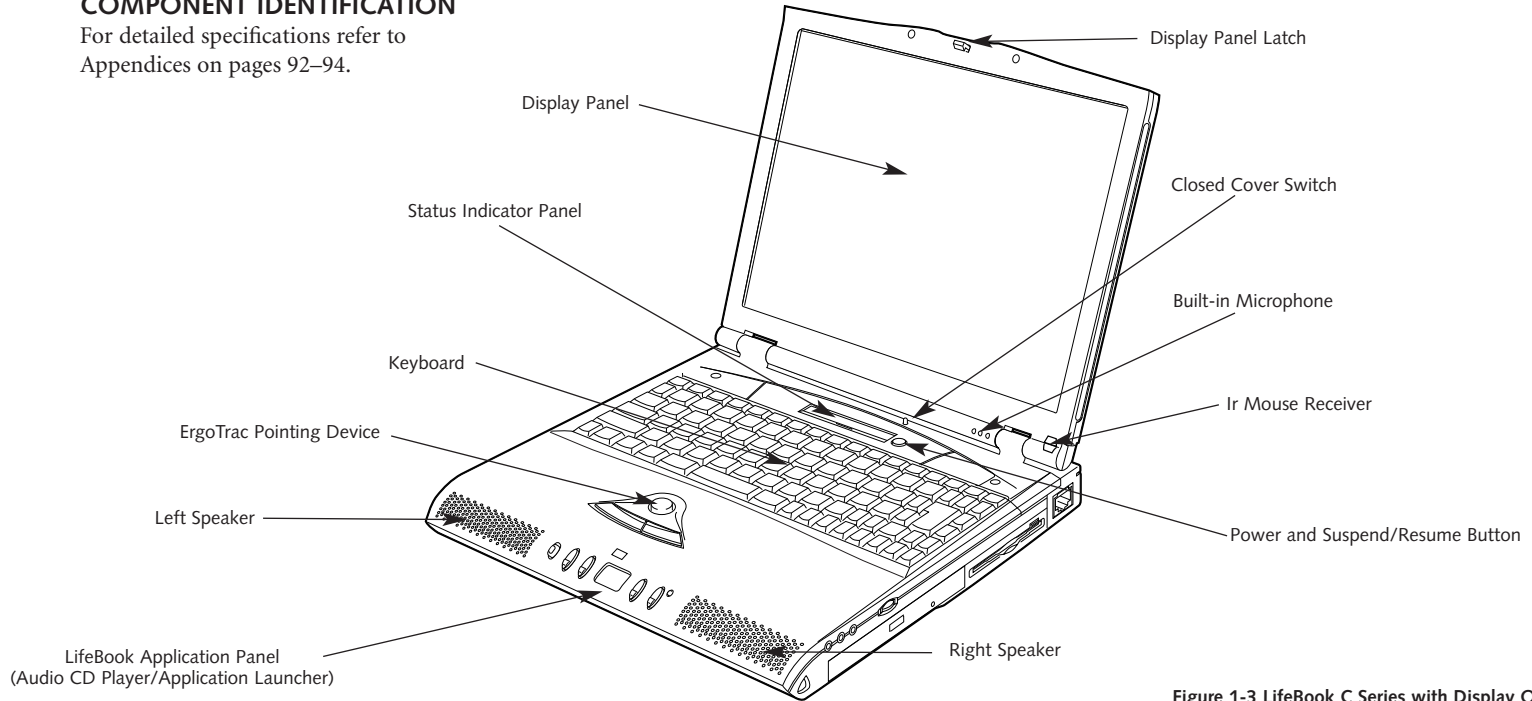


Figure 1-3 LifeBook C Series with Display Open

TOP AND FRONT COMPONENTS

Display Panel Latch

This latch locks and releases the display panel. When the display panel is released it pops up slightly to make it easier to open. (Figure 1-3.)

Display Panel

This is a color LCD panel with back lighting for the display of text and graphics. (Figure 1-3.)

Built-in Microphone

The built-in microphone allows mono audio input to your notebook. (Figure 1-3.)

Status Indicator Panel

An LCD display of the status of the power state and source, Suspend mode, battery charge, floppy disk drive activity, hard drive activity, CD-ROM drive activity, PC Card activity, CapsLock, NumLk and Scr Lk. (Figure 1-3.)

Wireless IR Mouse Receiver

This port enables the use of the optional wireless IR Mouse. (Figure 1-3.)

Suspend/Resume Button

The Suspend/Resume button allows you to suspend notebook activity without powering off, resume your notebook from suspend mode, and power on your notebook when it has been shut down from Windows 98 SE. (Figure 1-3.)

Left and Right Speakers

The built-in dual speakers output stereo sound from the notebook. (Figure 1-3.)

Closed Cover Switch

The closed cover switch turns off the LCD back lighting when the display panel is closed, thus saving power. To change the functionality of this switch, adjust the settings in the Advanced Features submenu of the Power menu in the BIOS Setup Utility. (See pages 43-44) (Figure 1-3.)

Keyboard

A full-size keyboard with dedicated Windows keys for input into the notebook. (Figure 1-3.)

ErgoTrac Pointing Device

The integrated ErgoTrac pointing device is composed of a short, comfortable, dish-shaped finger mouse and two buttons. Its button-like shape is both responsive and comfortable for your finger when rocked gently. (Figure 1-3.)

LifeBook Application Panel

On the front surface of your palm rest are a group of buttons which enable you to either control the DVD/CD-ROM as an Audio CD-ROM player when your unit is on or has been shut down from Windows®, or to launch applications by touching only one button. (Figures 1-3 and 1-4.)



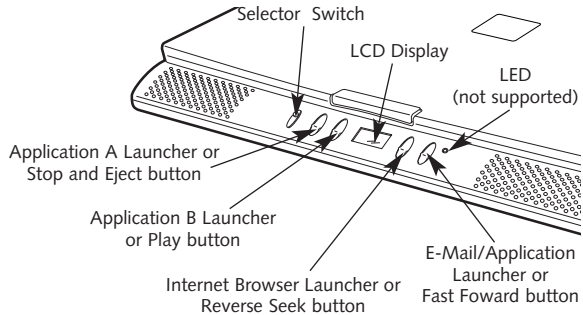
POINT

The Audio CD-ROM buttons will not function when the power has been switched off. If you wish to play CDs when you do not have your notebook booted up, you will need to shut it down (or suspend) from Windows and leave the power switch in the on position.

Setting Up Your LifeBook C Series

The switch at the left end of the panel determines the operational mode of the panel. When in the up position the panel works as an application launcher, when in the middle position the panel has no function, and when in the down position the panel operates as an audio player.

The first button launches an application of your choice when the panel is set as a launcher, and is the Stop and Eject button when it is set as an audio player. The second button launches a



second application of your choice when the panel is set as an application launcher, and is the Play button when it is set as an Audio Player. The LCD display in the middle of the player displays the current track number when the panel is set as an audio player. The first button to the right of the LCD launches your Internet Browser – or another application of your choice – when the panel is set as an application launcher, and is the reverse seek button when the panel is in the audio player mode. The last, or far right button of the panel, launches your e-mail when the panel is a launcher – or another application of your choice – and functions as the fast forward

button when in audio player mode. The LED at the far right of the panel is for a feature that is not currently supported by your LifeBook. If you register, you will be notified of this free upgrade as soon as it is available. (Figure 1-4.)

LEFT-SIDE PANEL COMPONENTS

Anti-theft Lock Slot

This is a slot that allows you to attach a optional physical lock down device. (Figure 1-5.)

Power Switch

This switch is the main power switch for your notebook. (Figure 1-5.)

| Selector Switch | A | B | Internet | E-mail |
|-----------------|----------------------|----------------------|--|------------------------------------|
| Application | Launch Application A | Launch Application B | Launch Internet Browser or other application | Launch e-mail or other application |
| Lock | None | None | None | None |
| CD | Stop/Eject | Play/Pause | Reverse | Forward |

Figure 1-4 LifeBook Application Panel and function table

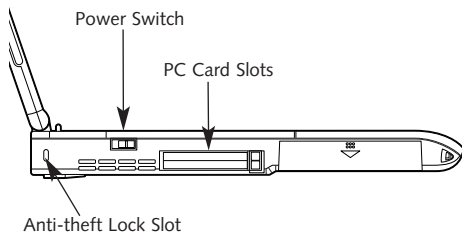


Figure 1-5 LifeBook C Series Left-side Panel

PC Card Slots

The PC Card Slots allow you to install two Type II PC Cards or one Type III PC Card. (See pages 50–52 for more information on PC Cards.) The button to the left of the card slots locks the card(s) in place, and the buttons to the right of the slots eject the card(s) from the slots. (Figure 1-5.)

RIGHT-SIDE PANEL COMPONENTS

Headphone Jack

You can connect headphones or powered external speakers to the headphone jack. (Figure 1-6.)

Stereo Line In Jack

The stereo line in jack allows you to connect an external audio source, like an audio cassette player, to your notebook. This jack will not support an external microphone. (Figure 1-6.)

Microphone Jack

The microphone jack allows you to connect an external mono microphone. (Figure 1-6.)

Volume Control

The volume control is a knob which provides manual control of the sound level of all audio output from your notebook. (Figure 1-6.)

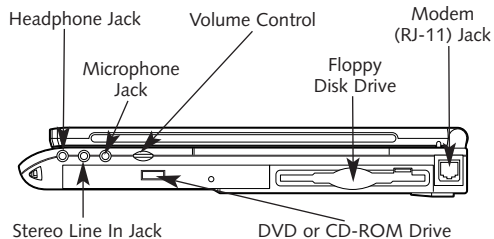


Figure 1-6 LifeBook C Series Right-side Panel



CAUTION

There are also software volume controls. The knob setting and the software settings will interact. Be sure to check both the software volume control and the knob on your notebook if you are experiencing problems. (See *Volume Control on page 30 for more information.*)

DVD or CD-ROM drive

Your notebook will have either a 24x max CD-ROM player, or a 4x DVD player which also plays CD-ROM's at up to 24x speed. (Figure 1-6.)

Floppy Disk Drive

The floppy disk drive provides removable data storage. (Figure 1-6.)

Setting Up Your LifeBook C Series

Modem (RJ-11) Jack

This is the jack for attaching a telephone line to the internal modem. (Figure 1-6.)



CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire notebook. Consult your PBX manufacturer's documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem.



CAUTION

The internal modem on all Fujitsu notebooks from Fujitsu PC Corporation are certified for use in the United States and Canada. The modem may be certified in other countries. Please access our

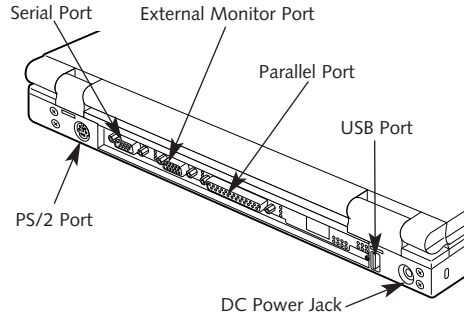


Figure 1-7 LifeBook C Series Rear Panel

website at www.8fujitsu.com for a list of the other world-wide locations where the internal modem has been certified.

REAR PANEL COMPONENTS

PS/2 Port

The port allows you to connect an external PS/2 keyboard, mouse, or numeric keypad. (Figure 1-7.)

Serial Port

The serial port allows you to connect serial (RS-232C) devices, such as serial printers or serial scanners. (This is also sometimes referred to as a COM port.) (Figure 1-7.)

External Monitor Port

This port allows you to connect an external VGA or SVGA CRT monitor. (Figure 1-7.)

Parallel Port

The parallel port allows you to connect parallel devices, such as a parallel printer to your notebook. (This is also sometimes referred to as an LPT port.) (Figure 1-7.)

USB Port

The USB port allows you to connect Universal Serial Bus devices, such as external game pads, pointing devices, keyboards and speakers. (Figure 1-7.)

DC Power Jack

The DC power jack allows you to plug in the AC adapter or the optional auto/airline adapter to power the notebook and charge the internal Lithium ion Battery. (Figure 1-7.)

BOTTOM COMPONENTS

Main Unit and Configuration Label

This label shows the model number and other information about your notebook. In addition the configuration portion of the label has the serial number and manufacturer information that you will need to give your support representative so that he or she can help you. It identifies the exact version of various components of your notebook. (Figure 1-8.)

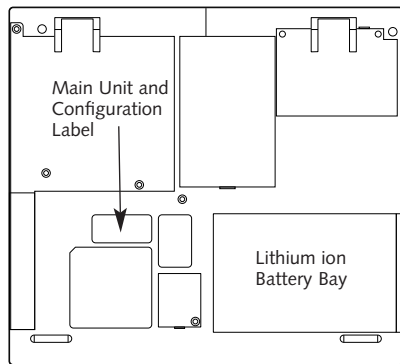


Figure 1-8 LifeBook C Series Bottom View

Lithium ion Battery Bay

The Battery Bay contains the internal Lithium ion Battery. It can be opened for the removal of the Battery when stored over a long period of time or for swapping a discharged battery with a charged Lithium ion Battery. (Figure 1-9.)

Lithium ion Battery Bay

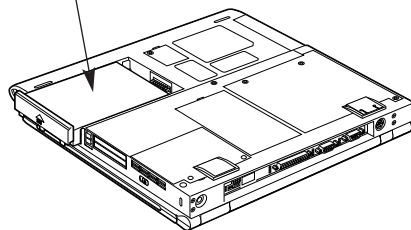


Figure 1-9 Lithium Battery in Battery Bay

Starting Your LifeBook C Series from Fujitsu

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SECTION TWO

STARTING YOUR LIFEBOOK C SERIES FROM FUJITSU

This section describes the initial power on and setup of your notebook. It provides information on power sources, powering on, shutting down, initial software setup and the registration of your LifeBook C Series.

POWER SOURCES

Your notebook has three possible power sources: the internal Lithium ion battery; the AC adapter; or an optional auto/airline adapter.

Connecting the Power Adapters

The AC adapter or an optional auto/airline adapter provides power for operating your notebook and charging the battery.

(Figure 1-2.)

To Connect the AC Adapter

1. Plug the wall connector into the AC adapter.
2. Plug the DC Output cable of the AC adapter into the DC Power jack on the rear panel of your notebook. (Figure 2-1.)

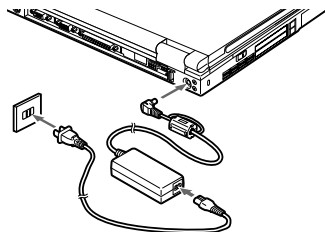


Figure 2-1 Connecting the AC Adapter

3. Plug the AC adapter into an AC electrical outlet.

To Connect the Optional Auto/airline Adapter

1. Plug the DC Output cable into the DC Power jack on the rear panel of your notebook.
2. Plug the auto/airline adapter plug into the cigarette lighter or accessory plug of a car or other vehicle with the ignition key in the On or the Accessories position or into the DC Power jack on an airplane seat.

To Switch From AC Adapter Power To Battery Power

1. Be sure that you have a charged or partially charged battery installed.
2. Remove the AC or auto/airline adapter from the DC Power jack.



POINT

The internal Lithium ion battery is not charged when you purchase your notebook. Initially you will need to connect the AC adapter or the auto/airline adapter to use it. If you purchase a second Lithium ion battery it will not be charged when you get it. You will need to charge it prior to use.

DISPLAY PANEL

Opening the Display Panel

Lifting the latch releases the top of the display panel from the front of the notebook body. When the display panel is released it pops up slightly to make it easier to open. Lift the display panel backward until the screen is at a comfortable viewing angle. (Figure 2-2.)

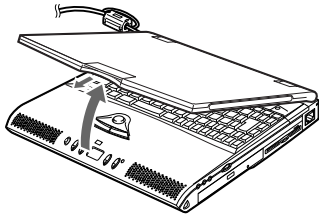


Figure 2-2 Opening the Display Panel

Adjusting the Brightness

To adjust the brightness of your display, use the **Fn** key with the **F6** and **F7** keys. To turn the brightness up hold down the **Fn** key and press the **F7** key repeatedly. To turn it down follow the same procedure with the **Fn** and **F6** keys.

POINT

The higher the brightness level, the more power the notebook will consume and the faster your battery will discharge. For maximum battery life, make sure that the brightness is set as low as possible.

STARTING YOUR LIFEBOOK FOR THE FIRST TIME

Power On

The power switch is located on the left side of your notebook. This switch is used to turn On the computer from its Off state. Once you have connected your AC adapter or have charged the internal Lithium ion Battery, you can power On your notebook.

Facing the keyboard and display panel, move the power switch towards the rear of your notebook. This is the On position. (See Figure 2-3.) When you are done working you can leave your notebook in Suspend mode, (see pages 35–36), or you can shut down the operating system and then turn the power switch off.

The power switch moved toward the front of your notebook is in the Off position. (See the *Power Off* section, page 17, for the recommended *shutoff* procedures.)

CAUTION

When you turn on your notebook be sure you have a power source. This means that the internal Lithium ion Battery is installed and charged, or that the AC adapter or the auto/airline adapter is connected and has power.

CAUTION

Do not carry your notebook around with the power on or subject it to shocks or vibration, as you risk damaging your notebook.

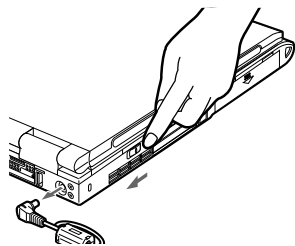


Figure 2-3 Power On

When powered On, your notebook carries out a Power On Self Test (POST) to check the internal parts and configuration. If a fault is found a short series of beeps will sound and/or an error message will be displayed. (*See Troubleshooting on pages 80-82.*) Depending on the nature of the problem you may be able to continue by starting the operating system or by entering the setup utility and revising the settings.

After satisfactory completion of the Power On Self Test (POST) your notebook will load your operating system.

Booting the System with Windows 98 Second Edition

We strongly recommend that you not attach any other external devices and do not put a CD, DVD or floppy in any drives until you have gone through the initial power on sequence.

When you turn on your notebook for the first time, it will display a Fujitsu logo on the screen. If you do nothing the system will read the hard drive for the operating system software, flash the notebook configuration information on the screen, and then the Windows 98 SE Welcome will begin.

Designed to accommodate the needs of many users, in many different countries, Windows 98 SE needs to be configured for you the first time you use it. The Windows 98 SE has four parts: Getting Started – here you have the opportunity to enter this custom information and setup your phone so that your LifeBook will be prepared to dial out, Registration – easy on-line registration for Windows 98 SE with Microsoft and your LifeBook with Fujitsu PC Corporation,

Windows License – a required procedure to activate Windows 98 SE, and Final Settings – Windows 98 SE takes the information you have entered and makes your configuration. If you need to stop the process, you may click on "cancel" on any screen, and Windows 98 SE will shut down. You may restart the process at any time, but you must complete it to use your LifeBook.

Getting Started

Read the instructions on the screens carefully, and fill in the information as directed. You will be asked for such items as the language you wish to use, the country in which you live, your first and last name, and about how you dial out from where you will be using your computer. For the phone settings, enter the information for the location where you are setting up your LifeBook. Windows 98 SE will help you dial from other locations as they come up. If you are not connected to a phone line and plan to register your LifeBook at a later time, you may click on "skip", and you will go directly to the condition of use page.

Starting Your LifeBook C Series

Once you have setup your LifeBook to dial out, Windows 98 SE will make a free telephone call which will test these settings. If the call is unsuccessful, you will be returned to the phone settings page where you may try to fix them at this time. If you are unable to fix the settings please contact Fujitsu PC Service and Support. (See page 17.) If you would simply like to move on, and register your LifeBook at a later time, simply click on "skip" and you will go directly to the condition of use page.

Registration

If your connection is successful, you will go to the Registration Confirmation page. On this page simply enter the requested information, and then check the box at the bottom to register your copy of Windows 98 SE with Microsoft. Once you have finished, click on next to continue.



POINT

If you do not register at this time you can do it later simply by double-clicking on the **LifeBook Registration** icon on your desktop, and following the instructions.

You will then go into Fujitsu Registration. Follow the instructions on the screens, and enter all of the information so that if you need help FPC service and support will be able to serve you better.

Final Settings

The first part of your final settings is the Windows End User License Agreement. Read the agreement carefully. You can scroll through the text using your pointing device to activate the scroll bar or use the up arrow **↑** and the down arrow **↓** keys to move up and down the text one line at a time, or use the **Page Up** and **Page Down** keys to move the text one screen at

a time. When you finish reading you must accept or reject the terms of the agreement and then click on the Next **>** button.



POINT

If you reject the terms of the license agreement you will be asked to review the license agreement for information on returning Windows 98 SE or to shut down your notebook.

Next you will need to enter your Windows Product Key. Look in the box that your notebook came in and you will find a Windows 98 SE Certificate of Authenticity shrink wrapped with the Windows 98 SE Users manual. On the certificate you will find a bar-code with a number above it. This is your product key and the number you need to enter on the Product Key screen. When you have entered the number exactly as shown click on the Next **>** button.

 **POINT**

You cannot use your notebook until you have accepted the License Agreement and entered your product key. If you stop the process your notebook will return to the beginning of the Windows 98 SE Welcome Process, even if you shut your LifeBook down and start it up again.

Wait for a few moments as Windows 98 SE prepares for you. Once it is ready, your desktop will appear, and you are ready to begin!

 **POINT**

Windows 98 SE will briefly initialize a system device before displaying the Windows desktop for the first time.

 **POINT**

You will find a Emergency Recovery CD-ROM packet in your accessories box. Please store the packet in a safe place in case there is a loss of data and it becomes necessary to re-install your operating system and/or application programs. (See *Restoring Your Pre-installed Software from the Recovery CD-ROM on page 84.*)

REGISTERING YOUR LIFEBOOK

What are the benefits of registering?

You will receive an identification label for your LifeBook, which, if your LifeBook is ever lost, may help in getting it returned to you. You also receive priority Personal Identification Number (PIN), technical support access and useful product mailings. Proof of purchase is not required if you register within 30 days of your purchase.

How do I register?

By modem, fax, mail, telephone, or on the web. With Windows 98 SE, it is a part of the Windows 98 SE Welcome process. If you do not register during the Welcome process you can double-click on the **LifeBook Registration** icon on your desktop and then follow the instructions.

You may also complete the pre-printed registration form and either:

fax it to **1-949-450-9140**

or mail it to:

Fujitsu PC Corporation
15355 Barranca Pkwy
Irvine, CA 92618-9520

or call: **1-800-8fujitsu (1-800-838-5487)**

You may also register on our website: **www.8fujitsu.com**. You will need to be set up with an Internet Service Provider(ISP) to use this option.

LEARNING ABOUT YOUR OPERATING SYSTEM AND APPLICATION SOFTWARE

Tutorials

All operating systems and most software applications have tutorials built-in. We highly recommend that you step through the tutorial before you use an application even if you are familiar with the same application on a different machine, an earlier version of the application, or a similar product.

Manuals

In the accessories box you will find manuals for Windows 98 SE.

Software manuals of pre-installed software are available online. See the help screens of your pre-installed software. We recommend that you review the on-line documentation for general information on the use of these applications and to get a basic understanding of what is covered and how it is organized, should questions arise as you use the applications.

Links to Fujitsu On-line

You can go directly to the Fujitsu Accessories catalog for your notebook by clicking on the LifeBook Accessories Website option from the Windows Start menu. This will take you to the website for Fujitsu Lifebook accessories.

You can also reach the Fujitsu Service and Support website on-line by choosing the Fujitsu Service & Support website option in the Service and Support folder in the Windows Start menu. Alternately, you may call: **1-800-8fujitsu** (1-800-838-5487)

POWER OFF

Before turning off the power by putting the power switch in the Off position, check that the Hard Drive and PC Card Access indicators are all Off. (See *Figure 3-1, page 20.*) If you turn off the power while accessing a disk or PC Card there is a risk of loss of data. The Off position is reached by facing the keyboard and display panel, and moving the switch toward the front of your notebook. To assure that your notebook shuts down without error, use the Windows shut down procedure.



CAUTION

Never turn your notebook off while an application is running. Be sure to close all files, exit all applications and shut down your operating system prior to turning off the power with the power switch. If files are open when you turn the power off, you will lose any changes that have not been saved, and may cause disk errors.

Shutting down your notebook from Windows lets your notebook shut down operations, and turn off the power in the proper sequence to prevent errors. The sequence is:

1. Go to the Start button menu.
2. Click on Shut Down.
3. Verify that Shut Down is selected and click on Yes.

If you are going to store your notebook for a month or more, take the following precautions:

1. After shutting down from Windows turn off your notebook using the power switch.
2. Close your notebook display panel.
3. Disconnect the AC adapter.
4. Remove the batteries and store them separately in a cool dry place.



POINT

When your notebook has been shut down from Windows, it is not the same as being turned off from the power switch. It is in a pseudo-off state, with all applications closed, but can and must be turned on by pressing the Suspend/Resume button. It is drawing some current in the pseudo-off state.

RESTARTING THE SYSTEM

If your system is on, and you wish to restart your system be sure that you use the following procedure.

1. Click on the Start button.
2. Click on Shut Down.
3. Click on Restart.
4. Verify that Restart is selected and click on Yes.

Windows will shut down and restart your notebook.



POINT

You may also select Shut Down and once the power is off for 10 seconds or more you can restart your notebook with the Suspend/Resume button, or once the power is off, turn the power switch to Off for 10 seconds and then switch it to On. These alternative methods are not recommended.



CAUTION

Turning off the power switch without exiting Windows may cause an error when you start the next time. Turning the power to On when it has been Off for less than ten seconds may cause an error when you start the next time.

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SECTION THREE USING YOUR LIFEBOOK C SERIES FROM FUJITSU

This section describes the indicators, buttons, connections, operating modes, and software of your LifeBook C Series and their uses.

STATUS INDICATOR PANEL

The Status Indicator panel is located in the recess just above the keyboard. (Figure 3-1.)

The appropriate icon will appear to indicate the activity of the corresponding component in your notebook.

Power Indicator

The Power indicator tells you when the system is operational. It is on steady when there is power to your notebook, and blinks when the system is in Suspend mode. It goes off when the system has entered Save-to-Disk mode or has been powered down by Windows 98 SE or the Power Button.

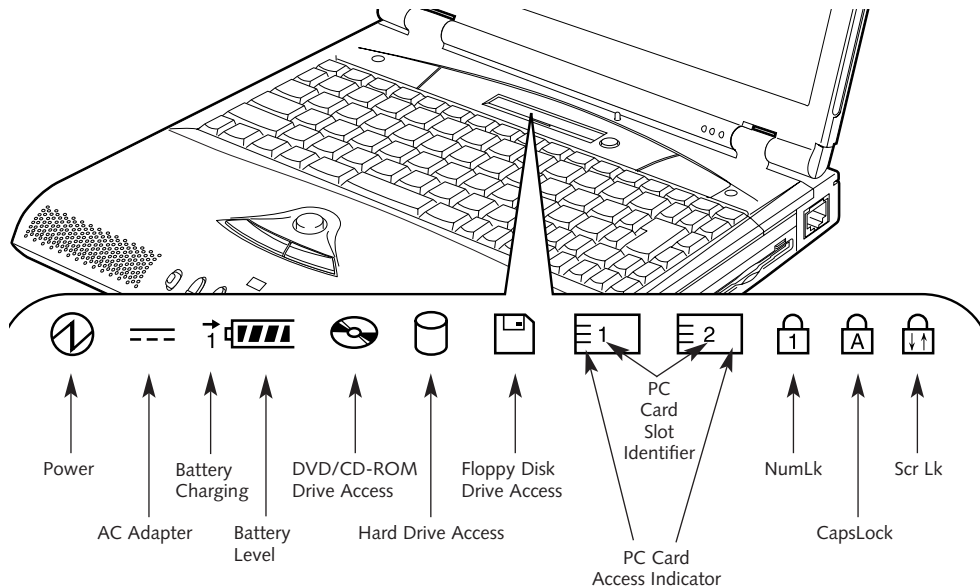


Figure 3-1 Status Indicator Panel

Using Your LifeBook C Series

== AC Adapter Indicator

The AC Adapter indicator tells you whether the system is operating on an AC or auto/airline adapter, or the battery alone. The indicator is On when either of the adapters is active and Off when power comes from the battery alone. If a battery is charging, the Power Adapter indicator is active regardless of whether your notebook is On or Off. If there is no battery charging, and your notebook is powered Off, then the AC Adapter indicator and the Battery indicators will all be Off.

|||| Battery Indicator

The battery indicator shows whether or not the Lithium ion battery is installed, and indicates its condition. (Figure 3-1.)

A small arrow icon (Battery Charging indicator) appears to the left of the Battery Level indicator and above the number (Battery identifier) if the battery is charging. The Battery Charging indicator flashes if the battery is too hot or too

cold to charge. (Figure 3-1.) The Battery Charging indicators operate whether the notebook is Off or On.

The symbols inside the battery outline of the Battery Level indicator show the power level, and condition of that battery. (Figure 3-2.)

**CAUTION**

A shorted battery is damaged and must be replaced. (See Figure 3-2.)

**CAUTION**

Turning off the power or using the Suspend/Resume button when any of the Access indicators are On may cause loss of data and/or system errors.

**CAUTION**

Batteries subjected to shocks, vibration temperatures or extreme temperatures can be permanently damaged.

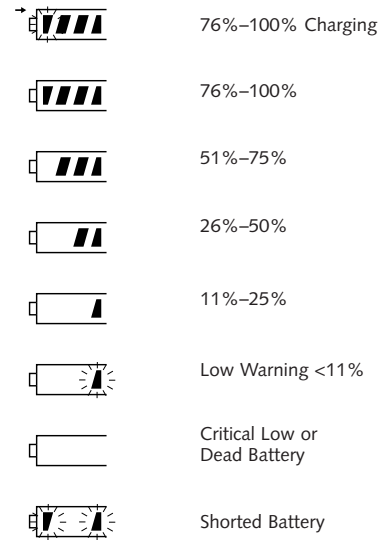


Figure 3-2 Battery Level Indicator

DVD/CD-ROM Drive Access Indicator

The DVD/CD-ROM Access indicator tells you that the DVD/CD-ROM drive is being accessed. The DVD/CD-ROM Access indicator will flash when the software tries to access a DVD/CD even if no DVD/CD is inserted.

POINT

The Windows 98 SE DVD/CD automatic insertion function will periodically check for a DVD/CD inserted in the drive, causing the DVD/CD-ROM Access indicator to flash. The DVD/CD automatic insertion function allows your system to automatically start a DVD/CD as soon as it is inserted in the drive and the tray is closed. It will begin playing an audio DVD/CD or will start an application if the DVD/CD includes an auto run file.

POINT

You can disable the DVD/CD automatic insertion function if you wish.

To disable the DVD/CD automatic insertion function:

1. Save all data and close all applications.
2. Click on the Start button.
3. Point to **Settings**.
4. Click on the Control Panel. The control panel window will be displayed.
5. Double click on the System icon. The system properties dialog box will be displayed.
6. Click on the Device Manager tab. The device list will be displayed.
7. Click on the + to the left of the DVD/CD-ROM icon. The DVD/CD-ROM drive manufacturer's name and model will be displayed.
8. Double click on the DVD/CD-ROM drive manufacturer's name and model.
9. The DVD/CD-ROM drive manufacturer's name and model properties dialog box will be displayed.
10. Click on the Settings tab.
11. Click on the automatic insertion notification box to turn it off.
12. Click on **OK**.
13. Click on **Close** in the system properties dialog box.
14. Click on **Yes** in the system settings change pop-up to restart the computer and activate this change.

You can re-activate the function by repeating the process, except that step 11 will change the setting to on.

Hard Drive Access Indicator

The Hard Drive Access indicator tells you when the internal hard drive is being accessed.



Floppy Disk Drive Access Indicator

The Floppy Disk Drive Access indicator tells you a floppy disk drive is being accessed. The Floppy Disk Drive Access indicator will flash when your software tries to access a floppy disk even if no floppy disk is installed.



PC Card Access Indicators

The PC Card Access indicators tell you when an installed PC Card is being accessed. Card 1 is the bottom connector inside the slot and Card 2 is the upper connector inside the card slot. Type III cards are always Card 1 only.



NumLk Indicator

The NumLk indicator tells you the internal keyboard is set in ten-key numeric keypad mode. (See page 28 for more information on the numeric keypad.) You can activate the NumLk mode by pressing the **NumLk/ScrLk** key while holding down the **Shift** key. Deactivate the mode the same way that you activated it.



CapsLock Indicator

The CapsLock indicator tells you when the keyboard is set for all capital letters. Activate the all capital letters setting by pressing the **CapsLock** key on the keyboard. Deactivate the mode the same way that you activated it.



ScrLk Indicator

The Scr Lk indicator tells you when scroll lock is active. You can activate or deactivate the scroll lock by pressing the **NumLk/ScrLk** key. Deactivate the mode the same way that you activated it.

BATTERY

The Lithium ion battery is rechargeable, and the operating time will vary depending on active power management features and user activity levels. If the internal Lithium ion Battery goes dead, you must install the AC adapter or shut down and install a charged battery. (See page 49 for replacing the battery.)

The Lithium ion battery operating time may become shorter than the reference value if it is used under the following conditions:

- When used at temperatures that exceed a low of 5°C or a high of 35°C. High temperatures not only reduce charging efficiency, but can also cause battery deterioration. (The Charging icon on the Status Indicator panel will flash when you try to charge a battery that is outside its operating temperature range.)
- The battery charging capacity is reduced as the battery ages. If your battery is running low quickly, you should replace it with a new one.
- When using a high current device such as a modem, a LAN card, the DVD/CD-ROM drive, or the hard drive frequently.

Using the AC adapter will conserve your battery when using a high current device such as a modem, a LAN card, the DVD/CD-ROM drive, or the hard drive frequently.

 **CAUTION**

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery condition, and other customer preferences. DVD/CD-ROM drive, hard drive, and modem usage may also have a significant impact on battery life.

 **CAUTION**

Do not leave a faulty battery in your notebook. It might damage your AC adapter, optional auto/airline adapter, another battery, or your notebook itself. It may also prevent operation of your notebook by draining all available current into the bad battery.

 **CAUTION**

Under federal, state or local law it may be illegal to dispose of batteries by putting them in the trash. Please take care of our environment and dispose of batteries properly. Check with your local government authority for details regarding recycling or disposing of old batteries. If you cannot find this information elsewhere, contact your support representative at 1-800-8FUJITSU (1-800-838-5487).

Shorted Battery

If your Status Indicator panel shows a shorted battery, check the installation for that battery by removing and re-installing it. If it still shows that it is shorted, replace it with a new battery.

 **CAUTION**

A shorted battery is damaged and must be replaced so that it does not damage anything else.

Recharging the Battery

If you want to check the condition of the Lithium ion battery check the Battery Level indicator located on the Status Indicator panel. This indicator changes as the battery level changes.

The Lithium ion battery is recharged internally using the AC adapter or auto/airline adapter. To recharge a battery:

- Make sure the battery to be charged is installed in the battery bay of your notebook and the notebook is connected to a power source.
- Make sure that the Battery Charging indicator to the left of the Battery Level indicator is visible on the Status Indicator panel.

- Make sure the percentage charge is shown inside the Battery Level icon.
(Figure 3-2 on page 21.)

There is no memory effect on the Lithium ion batteries, which means that you do not need to discharge them completely before recharging, this is called "trickle charging". For approximate charging times see Self Help on our Service and Support website at www.8fujitsu.com. Once there click on *Self Help Center*. Using the pull-down menus select C Series, then select *Specifications*, then your unit.



CAUTION

Using heavy current devices such as LAN cards or frequent DVD/CD-ROM accesses may prevent charging completely.

Low Battery State

When the battery is running low, your notebook beeps about every 15 seconds and the Battery Level indicator flashes. If you do not respond to the low battery alarm, the battery will continue to discharge until it is too low to operate. When this happens there will be a multiple beep alarm, the Battery Level indicator will show dead battery, and your notebook will go into Suspend mode to try and protect your data as long as possible. Your power management settings do not effect what happens at the dead battery alarm level. Your notebook will go to Suspend mode. (Figure 3-2 on page 21.)



CAUTION

You may not be able to hear the audio alarms if the volume control is set too low or is turned off by either hardware or software but you will still be able to see the Battery Level indicator flash.

When the low battery alarm occurs, you need to save all your active data and put your notebook into Suspend mode until you can provide a new power source. You should provide this power as soon as possible. The new power source can be a charged battery or a power adapter, either AC or auto/airline.



CAUTION

When you are in Suspend mode there must always be at least one power source active. If you turn off the power with the power button, or remove all power sources, battery, AC adapter or auto/airline adapter, while your notebook is in Suspend mode any data which has not been saved to the hard drive will be lost.

Once your notebook goes into Critical Low Battery Suspend mode, you will be unable to resume operation until you provide a source of power either from an AC adapter, an optional auto/airline adapter, or a charged battery. Critical Low Battery Suspend mode shows on the Status indicator just like the normal Suspend mode. Once you have provided power, you will need to press the Suspend/Resume button to resume operation. In the Suspend mode, your data can be maintained for sometime. If a power source is not provided promptly, the Power indicator will stop flashing and go out, and you will have lost the data that was not stored.

Once you provide power, you can continue to use your notebook while an adapter is charging the battery. However, this charges the battery more slowly. If you want to charge the battery quickly, put your notebook into Suspend Mode, or turn it off while the adapter is charging the battery. (See *Power Off* on pages 17 for shutdown procedures.)

**CAUTION**

There is no guarantee that data will not be lost once your notebook enters the Dead Battery Suspend mode.

INTEGRATED ERGOTRAC POINTING DEVICE

The ErgoTrac pointing device is composed of a short, comfortable, dish-shaped pointing device and two buttons located in front of the keyboard. The ErgoTrac pointing device has the function of a mouse, and moves the cursor

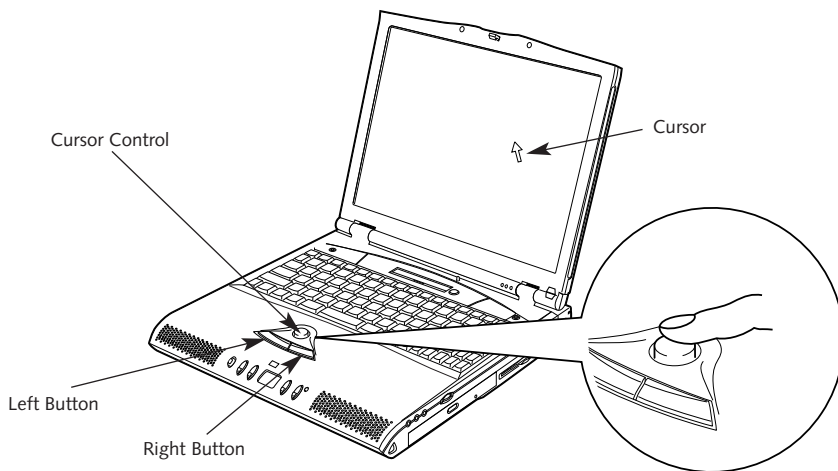


Figure 3-3 ErgoTrac pointing device

around on the screen – up, down, left and right. A light pressure with the tip of your finger is all that is required to operate the ErgoTrac. The more pressure you use, the faster the cursor will move. The second part of the ErgoTrac pointing device – the buttons – function as mouse buttons, and the functions they perform depend on the application you are running. Figure 3-3 shows the position of the ErgoTrac pointing device and buttons.

POINT

An external mouse can be connected to the PS/2 port on the rear of the notebook.

Clicking

Clicking means pushing and releasing a button. To left-click move the screen cursor to the item you wish to select, press the left pointing device button once, and then immediately release it. To right-click, move the mouse cursor to the

item you wish to select, press the right pointing device button once, and then immediately release it. (Figure 3-4.)

Double-Clicking

Double-clicking means following the preceding Clicking procedure, but pressing the pointing device button twice in rapid succession. Double-clicking can only be done with the left button.

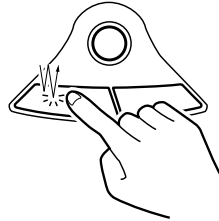


Figure 3-4 Clicking

CAUTION

If the interval between clicks is too long, double-clicking will not be executed.

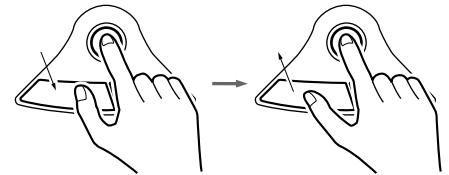


Figure 3-5 Dragging

**POINT**

The interval between presses for double clicking, and other parameters of pointing and selecting, can be adjusted with the selections in the dialog box of the mouse icon in your Windows Control Panel.

Dragging

Dragging means moving the cursor over an object, pressing the left button – and keeping it pressed – while moving the cursor to the desired new location, then releasing the button. (Figure 3-5.)

ErgoTrac Pointing Device Control Adjustment

The Mouse Properties in your Windows Control Panel provides customization of your ErgoTrac pointing device. There are four (4) aspects of the ErgoTrac pointing device operation which you can adjust.

- Buttons – This lets you set up the buttons for right or left handed operation and set the time interval for double clicking.
- Pointers – This lets you set up the size and shape of the cursor for different functions.
- Motion – This lets you set up the relation of the speed of motion of your finger to the motion of the cursor and to enable a trailing tail for the cursor arrow.

You may want to try practicing with different adjustments until you find a combination that is comfortable for you.

USING THE KEYBOARD

Your notebook has an integral 87-key keyboard. (Figure 3-6.) The keys perform all the standard functions of a 101-key keyboard and also include Windows keys and other special function keys. This section describes only those items specific to your notebook. They are the numeric keypad, the cursor keys, the function keys, the function extension key (**Fn**) and the Windows keys.

Numeric Keypad

Certain keys on the keyboard perform dual functions as both standard character keys and numeric keypad keys. Figure 3-6 highlights these keys. To switch into numeric keypad mode, press the **NumLk/Scr Lk** while holding down the **Shift** key. You can now enter numerals 0 through 9, perform addition (**+**), subtraction (**-**), multiplication (*****), or division (**/**), and enter decimal points (**.**) using the keys designated as ten-key function keys. The keys in the numeric keypad are marked on the front edge of the key to indicate their secondary functions.

To return these keys to their normal character function, press the **NumLk/Scr Lk** while holding down the **Shift** key again.

Using Your LifeBook C Series

**POINT**

When an external numeric keypad is connected to the notebook the **NumLk** mode enables the external keypad. The built-in keyboard numeric keypad can be used by holding down the **Fn** key while using the designated keys.

Cursor Keys

The cursor keys are the four arrow keys on the keyboard which allow you to move the cursor up ↑, down ↓, left ← and right → as your application allows.

**POINT**

The integrated ErgoTrac pointing device and/or external mouse are also used for moving the cursor around the screen.

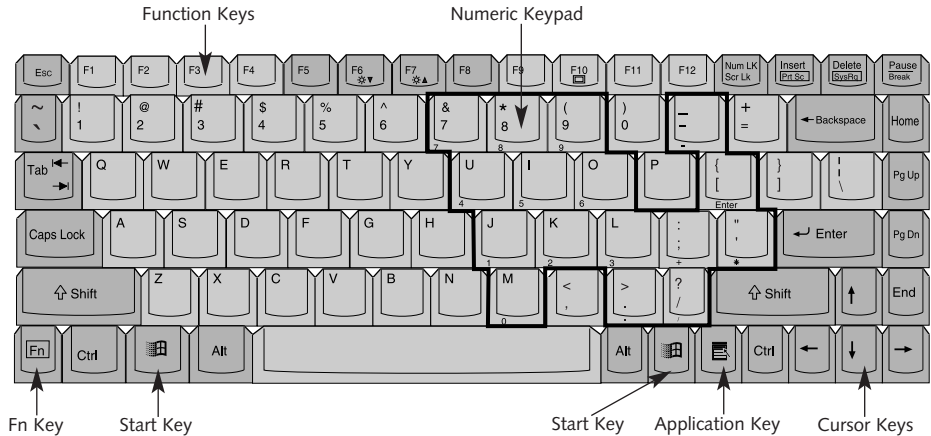


Figure 3-6 Keyboard

Function Keys

Your notebook has 12 function keys, **F1** through **F12**. The functions assigned to these keys differ for each application. You should refer to your software documentation to find out how these keys are used. (Figure 3-6.)

Fn Key

The **Fn** key provides extended functions for the notebook and is always used in conjunction with another key. (Figure 3-6.)

Pressing **F5** while holding down the **Fn** key allows you to toggle between video compensation and no compensation. (Video compensation controls spacing on the display. When it is enabled, displays with less than 800 x 600 pixel resolution will still cover the entire screen.)

Pressing **F6** repeatedly while holding down the **Fn** key will lower the brightness of your display.

Pressing **F7** repeatedly while holding down the **Fn** key will increase the brightness of the display.

Pressing **F10** while holding down the **Fn** key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, external monitor only, or both built-in display panel and external monitor.

Pressing the Suspend/Resume button while holding down the **Fn** key will activate the Save-to-Disk mode. *(Please see pages 37–39 for information regarding this feature.)*

Windows Keys

Your notebook has three Windows keys, two Start keys and an Application key. The Start key displays the Start menu. This is the same as the button on the toolbar which is typically at the bottom of your Windows 98 SE desktop. The Application key has the same function in Windows 98 SE as the right mouse button, it displays the Shortcut menu for whatever item is selected. See your Windows 98 SE documentation for additional information. *(Figure 3-6.)*

VOLUME CONTROL

All system and application functions have multiple volume controls which interact with each other. There is the hardware volume control on the right side panel of your notebook. There is also a volume control in the operating system Sound Control panel and any other application with sound.

Each setting source puts an upper limit on the volume which can be set by the other sources. For example if the hardware volume control is turned all the way down, your software volume control settings have no effect. By the same token, if the operating system has the sound turned off, adjusting the hardware or other application software volume settings will not produce sound. One easy operating method is to use the hardware and operating system volume controls to set an upper limit on sound level and then make fine adjustments with other application software.



CAUTION

The operating system volume setting sets the maximum volume level of the hardware volume control knob.

FLOPPY DISK DRIVE

The floppy disk drive is a 3.5" drive which can read and write on 1.44MB and 720KB floppy disks. Floppy disk format is controlled from your operating system. *(See your software documentation for more information.)*

Loading a Floppy Disk

Insert a floppy disk into the floppy disk drive – shutter side first and label up – until the Eject button pops out. (Figure 3-7.)

POINT

When there is no floppy disk in the drive, the Eject button is flush with the right-side of your notebook.

Ejecting a Floppy Disk

To eject a disk, check that the Floppy Disk Drive Access indicator is Off, (see pages 20 and 23) and press the Eject button. (Figure 3-7.)

CAUTION

If you eject the disk while the Floppy Disk Drive Access indicator is On, there is a risk of damaging the disk, the disk drive or the data on the disk.

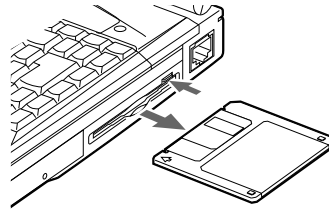


Figure 3-7 Ejecting a Floppy Disk

Preparing a Floppy Disk for Use

Before you can use a new floppy disk, you need to prepare it so your notebook knows where to store information. This preparation is called formatting or initializing a disk. You need to format new 3.5" floppy disks, unless you purchase preformatted disks. Use your notebook's operating system software to format a floppy disk. Please refer to the operating system manual for step-by-step instructions.

To prevent accidental erasure of data stored on a floppy disk, slide the "write protect" tab on the floppy disk to open up the small hole. This makes the disk "write protected." When you

want to write data to that disk, slide the write protect tab the other way to close the small hole. (See Figure 3-8.)

CAUTION

Formatting a previously used floppy disk is an effective method of clearing a disk as long as you realize that ALL the information on the disk will be erased.

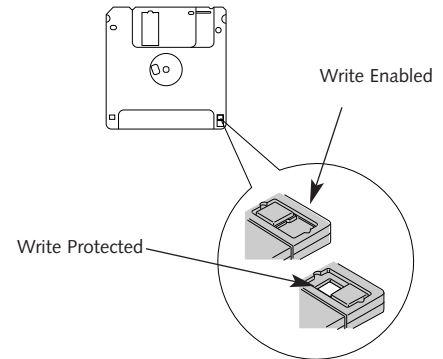


Figure 3-8 Floppy Disk Write Protect

Care of Floppy Disk Drive and Disks

- Avoid storing the floppy disk drive and disks in extremely hot and cold locations, or in locations subject to severe temperature changes.
- Keep the floppy disk drive and disks out of direct sunlight and away from heating equipment.
- Avoid storing the floppy disk drive in locations subject to shock and vibration.
- Avoid using the floppy disk drive and disks in damp and dusty locations.
- Never use the floppy disk drive with any liquid, metal, or other foreign matter inside the floppy disk drive or disk.
- Never store a floppy disk near a magnet or magnetic field.
- Never disassemble or dismantle your floppy disk drive. This may cause damage to your system and will void your warranty.

DVD OR CD-ROM DRIVE

You will have either a DVD or a CD-ROM drive. Operation is the same for either except that a DVD drive will read either DVD's or CD-ROM's

CAUTION

Do not operate your DVD/CD-ROM drive unless your notebook is sitting on a flat surface. Using a DVD or CD when the drive is not level may damage the drive or prevent proper operation.

Loading a DVD or CD

- Make sure there is power to your notebook.
- Push, gently but firmly, and release the eject button on the front of the drive to open the holder tray, the tray will come out a short distance. (See Figure 3-9.)
- Gently pull the tray out until a disk can be easily placed in the tray.

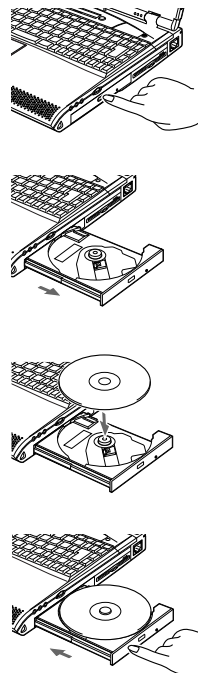


Figure 3-9 Loading the DVD/CD-ROM Tray

Using Your LifeBook C Series

- If there was a protective sheet in the tray when it was shipped, make sure it has been removed.
- Place the disk into the tray, label side up, with the hole in the center of the disk snapped onto the raised circle in the center of the tray.
- Close the tray.
- After the disk is loaded, it will take a short time for your notebook to recognize it.

**POINT**

If you have disabled your CD automatic insertion function (see page 22) you will have to start the CD from your desktop, as your notebook will not automatically recognize that the CD has been loaded.

Care of DVDs and CD-ROMs

DVDs and CD-ROMs are precision devices and will function reliably if given reasonable care.

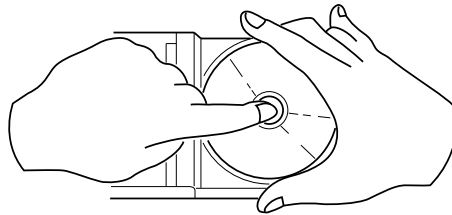


Figure 3-10 DVD/CD-ROM Handling

- Always store your disk in its case when it is not in use.
 - When removing the disk from its case, press down on the holder's center while lifting out the disk by its edges.
 - Always handle a disk by the edges and avoid touching the surface.
 - Avoid storing any disk in extreme temperatures.
 - Do not bend disks or set heavy objects on them.
 - Never write on the label surface with a ball point pen, pencil or similar device.
- If a disk is subjected to sudden changes in temperature, cold to warm condensation may form on the surface. Wipe the moisture off with a clean, soft, lint free cloth and let it dry at room temperature. **DO NOT** use a hair dryer or heater to dry a disk.
 - If a disk is dirty, use only a DVD/CD-ROM cleaner or wipe it with a clean, soft, lint free cloth starting from the inner edge and wiping to the outer edge.

LIFEBOOK APPLICATION PANEL

The LifeBook Application Panel is located at the front of your palm rest. This panel enables you to operate the DVD or CD-ROM player as an independent audio player, or launch applications with the simple touch of a button. LifeBook Application Panel works even when your system is in the pseudo-off state, (i.e. it has been shut down from Windows, but the power switch is in the on position,) or in suspend mode.

Your LifeBook also includes the software that lets you operate and configure the LifeBook

Application Panel. The LifeBook Application Panel is located in your start menu. It includes: Application Panel Setup, LifeBook Application Panel Guide, Activate LifeBook Application Panel and Deactivate LifeBook Application Panel. The LifeBook Application Panel makes your LifeBook more than just another notebook computer.

When you start Windows 98 SE, LifeBook Application Panel automatically starts. You will see an icon in the system tray, (the indented portion of the status bar where the clock is displayed,) that looks like a finger on a button. When you see this icon in the system tray you will know that LifeBook Application Panel is active.

A guide to LifeBook Application Panel is included with your notebook which explains in detail how to use the LifeBook Application Panel. To access it use the following procedure:

1. Click on Start.
2. Click on Programs.

3. Click on Fujitsu LifeBook Application Panel.
4. Click on LifeBook Application Panel Guide.

HARD DRIVE

Formatting the Hard Drive

The hard drive inside your notebook is formatted (initialized) at the factory. You do not need to format it under normal circumstances. Check your operating system documentation for information on initializing a hard drive if you need to reformat your internal hard drive.



CAUTION

If you reformat the internal hard drive ALL data including the operating system, applications software and data will be erased. Unless data is copied to floppy disks or other data storage media it will be permanently lost. All software will be need to be re-installed and data files restored from your back-up disks. See the operating system manual for more information on backing-up your data files.

The factory installed software, including the operating system, can be restored from the Recovery DVD/CD-ROM which came in the accessories box when you purchased your notebook. (See *Recovery DVD/CD-ROM on page 84 for more information.*) Any application software which you have purchased and installed will have to be re-installed from the original source. When doing a recovery remember that you must allocate space for the Save-to-Disk function if you have it enabled. (See *Your Save-to-Disk File Allocation on pages 44-46 for more information.*)

INTERNAL MODEM

Your LifeBook C Series is configured with a 56K fax/data/voice modem with V.90 support.

CAUTION

The internal modem on all Fujitsu notebooks from Fujitsu PC Corporation are certified for use in the United States and Canada. The modem may be certified in other countries. Please access our website at www.8fujitsu.com for a list of the other world-wide locations where the internal modem has been certified.

CAUTION

The internal modem is designed to the ITU-T V.90 standard. Its maximum speed of 53000bps is the highest, allowed by FCC, and its actual connection rate depends on the line conditions. The maximum speed is 33600bps at upload.

CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire notebook. Consult your PBX manufacturer's documentation for details. Some hotels have digital PBX systems. Be sure to find out BEFORE you connect your modem.

POWER MANAGEMENT

Your LifeBook C Series has many features for conserving power. Some power savings features are automatic and have no user control, such as those for the internal modem, while others depend on the parameters you set to best suit your operating conditions. Other power saving features turn the display brightness down, limit the use of high power devices, activate an appropriate power savings profile, and put your notebook in Suspend mode when not actually performing an operation. As with all mobile,

battery-powered computers, there is a trade-off between performance and power savings.

Internal power management for your notebook may be controlled from settings made in the BIOS setup utility, or from settings made in your operating system. For information on configuring your BIOS, please see the Self Help Center on our website at www.8fujitsu.com

Using the Suspend/Resume Features

When your notebook is active, the Power button, (*Figure 1-3 on page 5*), can be used to manually put your notebook into Suspend mode. The Power button is located next to the Status

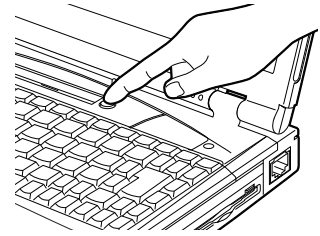


Figure 3-11 The Power Button

Indicator panel above the keyboard of your notebook. (Figure 3-11.) Push the Power button, when your notebook is active but no Access indicators are on and release the button (immediately). You will hear two short beeps and then your system will enter Suspend mode.

If your notebook is suspended, pushing the Power button will return your notebook to active operation at the point where it went into suspension. You can tell whether or not your system is in Suspend mode by looking at the Power indicator. (See page 20.) If it is visible and not flashing, your notebook is fully operational. If it is visible and flashing, your notebook is in Suspend mode. If it is not visible, the power is Off or your notebook is in Save-to-Disk mode. (See page 37.) When you receive your LifeBook C Series it will be set to the default in BIOS, which is Suspend mode.

**POINT**

Disabling the Suspend/Resume function prevents it from being used to put your notebook in Standby or Save-to-Disk mode. The resume function of the button cannot be disabled. (See the *Power Menu of the BIOS setup utility, pages 43-44, for more information.*)

**CAUTION**

The Standby or Save-to-Disk mode should not be used with certain PC Cards. Check your PC Card documentation for more information.

**POINT**

If your notebook is active when you enter the Standby or Save-to-Disk mode, changes to open files are not lost. The files are left open and memory is kept active during Standby mode or the memory is transferred to the internal hard drive during Save-to-Disk mode.

**CAUTION**

If you are running your notebook on battery power, be aware that the battery continues to discharge while your notebook is in Suspend mode, though not as fast as when fully operational. With a fully charged internal Lithium ion battery the suspend mode will maintain your status for 24 hours or more.

Standby Mode

Standby mode, in Windows 98 SE, saves the contents of your notebook's system memory during periods of inactivity by maintaining power to critical parts while turning off the CPU, the display, the hard drive and all of the other internal components except those necessary to maintain system memory, recognize the Power button and restart. Your notebook can be put in Suspend mode by:

- Pressing the Power button when your system is in the On state.
- Selecting Standby from the Windows Shut Down menu.
- Timing out from lack of activity.
- Battery level reaching the Dead Battery Warning condition.

Your notebook's system memory typically stores the file(s) on which you are working, the open application(s) and any other data required to support the operation(s) in progress. When you resume operation from

Standby mode, it returns to the point in the operation where it left off. You must use the Power button to resume operation, and there must be an adequate power source available, or your notebook will not resume.



CAUTION

Loss of all power sources, including batteries, while in the Standby mode will cause lost data and inability to return to operation with the Power button.

Using the Power Button to Perform Save-to-Disk

When your notebook is active, the Power button, (Figure 3-11), can be used to manually put your notebook into Save-To-Disk mode. You can activate Save-to-Disk by holding down the **Fn** key and pressing the Suspend/Resume button. You may also do it simply by pressing Suspend/Resume button, if you have reconfigured your BIOS. (See the BIOS guide on our website at www.8fujitsu.com.)

Push the Power button, when your notebook is active but no Access indicators are on and release the button (immediately). You will hear two short beeps and then your system will flash the Save-to-Disk screen, and enter Save-to-Disk mode.

If your notebook is in Save-to-Disk mode, pushing the Power button will return your notebook to active operation at the point where it went into Save-to-Disk mode. You can tell whether or not your system is in Save-to-Disk mode by looking at the Power indicator. (See page 20.) If it is visible and not flashing, your notebook is fully operational. If it is visible and flashing, your notebook is in Suspend mode. If it is not visible, the power is Off or your notebook is in Save-to-Disk mode.



POINT

If power is lost during Save-to-Disk mode the data will be retrieved automatically as soon as power is returned.

 **POINT**

When PC Cards or external devices are in use, Save-to-Disk mode cannot return to the exact state prior to suspension, because all of the peripheral devices will be re-initialized when the system restarts.

 **POINT**

The main advantage of using the Save-to-Disk function is that power is not required to maintain your data. This is particularly important if you will be leaving your notebook in a suspended state for a prolonged period of time. The drawback of using Save-to-Disk mode is that it lengthens the power down and power up sequences and resets peripheral devices.

 **CAUTION**

Be sure you know which settings are active for the Power Button before you use it; misuse can result in data loss. (See *the Power Menu of the BIOS setup utility, pages 43-44, for more information.*)

 **POINT**

Save-to-Disk mode requires allocating a significant amount of hard drive capacity for saving all system memory, which reduces your usable disk space. When you purchase your notebook it will have space allocated for the memory installed. If you increase the system memory with a memory Upgrade module, you will need to change the size of your Save-to-Disk allocation. Use the PHDISK Utility to increase the size of the Save-to-Disk file,

SAVE2DSK.BIN. (Refer to *Your Save-to-Disk File Allocation on pages 44-46 for more information.*) If you need help contact your support representative for recommendations.

Save-to-Disk Mode

The Save-to-Disk function saves the contents of the notebook's system memory to the hard drive as a part of the Suspend/Resume function. Your notebook is setup to perform this function in one way and can be configured through the system BIOS to do it in other ways.

Default Method for using Save-to Disk Mode:

- Press the **Fn** key together with the Suspend/Resume button when activating the Suspend mode. The Save-to-Disk pop-up will appear on your screen, simply wait until it has finished and your notebook will go into Save-to-Disk mode.

 **POINT**

If you are using CD Player, your notebook will not go into Suspend or Save-to-Disk modes until you stop Quick Player.

 **POINT**

Save-to-Disk mode will not operate when Resume On Modem Ring has been selected in the BIOS.

Customer configured BIOS methods:

- Press the Power Button until acknowledged with Save-to-Disk mode enabled from the Power menu of the BIOS setup utility.
- Select Standby from the Windows Shut Down menu with Save-to-Disk enabled by the BIOS Setup Utility.
- Time out from lack of activity with Save-To-Disk mode enabled from the Power Savings menu of the BIOS setup utility.

Your notebook's system memory typically stores the file(s) on which you are working, the open application(s) and any other data required to support the operation(s) in progress. When the Save-to-Disk function is activated your notebook saves the contents of the system memory to a file on the internal hard drive, and then automatically shuts off power to your notebook. When you resume operation by pressing the Power button, you return to the point in the operation where you left off, before going into Save-to-Disk mode.

 **POINT**

By holding down the **Fn** key while pressing the Suspend/Resume Button, it is possible to enter Save-to-Disk mode without enabling it in the BIOS Setup utility.

Idle Mode

Idle mode is one of the power management parameters. When Idle mode is enabled the CPU is put into low-speed operation when

there is no activity (keystroke, pointer action, sound generation, video display change, modem transmission or reception, etc.) on your notebook for 16 seconds. Any activity will cause the normal operation to restart automatically. This feature is independent of the Suspend/Resume modes. This parameter is enabled and disabled in the BIOS setup utility. (See pages 43-44.)

Standby Mode

Standby mode is one of the power management parameters. When Standby mode is activated, your notebook puts the CPU in low-speed operation, shuts off the display and turns off the hard drive when there is no activity (keystroke, pointer action, sound generation, video display change, modem transmission or reception, etc.) on your notebook for the user selected time-out period. (See page 40.) Any activity will cause your notebook to return to normal operation automatically. This feature is independent of the Power button. This parameter is enabled and disabled in the BIOS setup utility.



POINT

Windows 98 SE has its own integrated power management features that include the functionality of those listed above. (Idle and Standby Mode)

Video Timeout

The Video Timeout is one of the power management parameters which saves power by turning off the display if there is no keyboard or pointer activity for the user selected timeout period. Any keyboard or pointer activity will cause the display to restart automatically. This feature is independent of the Power button. This parameter is enabled and disabled in the BIOS setup utility. (See pages 43-44.)

Hard Disk Timeout

The Hard Disk Timeout is one of the power management parameters which saves power by turning off the hard drive if there is no hard drive access for the timeout period which has

been set in the BIOS setup utility. (See pages 43-44.) Any attempt to access the hard drive will cause the hard drive to restart automatically. This feature is independent of the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility.

Windows Power Management Control Panels

The Power Management icon in the Windows 98 SE Control Panel allows you to configure some of the power management settings that are normally controlled by the BIOS. For instance, you can set timeout values in the Power Management Control Panel for turning off the display and for turning off hard disks. You can specify these timeout values based on whether you are running on batteries or AC.

DATA SECURITY

Your LifeBook C Series has a built-in hardware control password security feature that allows you to protect the data stored in the notebook from unauthorized access. Your operating

system and some applications have software control password security features that allow you to protect all or portions of the data stored in the notebook from unauthorized access.

Hardware Data Security Features

When you are using your notebook's built-in hardware control password to gain access to the notebook the actual password will not appear on the screen. This is a safety precaution. The hardware control security parameters are set from the BIOS setup utility. (See *Security Menu in the BIOS Guide for more information on setting and clearing passwords and enabling and disabling built-in security features.*)

Software Data Security Features

The operating system and some applications have security features that are independent of the built-in hardware protection features that are controlled from the BIOS. See your software documentation for more information about these features.

**CAUTION**

Make sure you memorize your passwords, both hardware and software. If you forget, you may not be able to use the notebook, and you will have to contact your service provider and arrange to have them reset the hardware system password. See your software documentation for what to do if you forget your software security password(s).

**CAUTION**

Software security feature passwords may not be the same as the hardware security passwords. Be sure you know which features are controlled from software and which from hardware or you may lock yourself out of your own data or lock up your hardware and not be able to operate your notebook.

PRE-INSTALLED SOFTWARE

Your LifeBook C Series comes with pre-installed software for playing audio and video files of various formats. In addition there is file transfer and virus protection software.

All of the pre-installed software can be accessed from the Program folder of the Windows 98 SE Start menu or the following folders above the Program folder in the Start menu: System Management Software, Communications Software, Internet Software, Multi-media Software, Service and Support Software, and Business Software.

LapLink Professional

LapLink Professional by Traveling Software provides direct file transfers to other computers; data transfers via internal modem, a PC Card modem, a serial cable, or a parallel cable (cables are not included). See the LapLink online help screens for operating instructions. (Located in the Communications Software folder.)

Quicken 99 Basic

Quicken 99 Basic by Intuit is a personal money management program. It has features such as portfolio management, account registries, on-line banking, and bill paying features. (Located in the Business Software folder.)

McAfee VirusScan

Running your McAfee VirusScan program after loading data or programs from a floppy disk, DVD/CD-ROM or modem data transfer is a precaution that will protect the data on your hard drive from contamination or destruction. See your VirusScan online help screens for information on how and when to run this program. (Located in the Service and Support Software folder.)

PC Doctor

PC Doctor by Watergate Software is primarily for use by your support representative when helping you with trouble shooting. (Located in the Service and Support Software folder.)
(See page 61 for more information.)

Microsoft Works

Microsoft Works is a suite of software containing the basic tools to write letters and reports, track family and friends with address books, manage home finances, and create a home inventory. (Located in the Business Software folder.)

Microsoft Press Interactive Training

For users unfamiliar with Windows or just Windows 98 SE, your LifeBook C Series comes with this tutorial to help you get the most out of your operating system.

PMSet 98

PMSet 98 is a power management application which allows you to monitor battery status. (Located in the System Management Software folder.)

Adobe® Acrobat® Reader

The Adobe Acrobat Reader allows you to view, navigate, and print PDF files across all major computing platforms. (Located in the Service and Support Software folder.)

DVD Player

If your unit comes with a DVD Player, you will also have DVD Player pre-installed. This application will enable you to play DVD movies on your notebook. Fully functional, DVD Player includes controls which allow you to take full advantage of the features of a DVD movie, as well as standard features such as fast forward, fast reverse, pause, etc. You can find the software in the Programs menu under the Start button.



POINT

Your LifeBook C Series does not support CPU Clock control. This option is not selectable in the Power Control tab of PMSet 98.

BOOT SEQUENCE

Each time you power up or restart your LifeBook C Series, it goes through a quiet boot sequence that displays a Fujitsu logo until your operating system is loaded. During quiet boot, your notebook is performing a standard boot

sequence including a Power On Self Test (POST). To view this Boot Menu press the **Esc** key anytime while the Fujitsu logo is displayed. To enter the BIOS setup utility press the **F2** key anytime while the Fujitsu logo is displayed. When the boot sequence is completed without a failure and without a request for the setup utility, the system displays the Windows 98 SE opening screen. The boot sequence is executed when:

- You turn on power to the system using the power button on your notebook. (Figure 1-3 on page 5.)
- You restart your computer from the Windows 98 Shut down dialog box of the Start Menu.
- The software initiates a system restart. Example: When you install a new application.
- You reset the system by pressing the three keys **Ctrl+Alt+Del** at the same time and then restart your computer from the Windows 98 Shut down dialog box.
- You depress the reset button on the rear panel of your notebook.

**POINT**

The BIOS setup utility is entered by pressing the **F2** key during the boot process while the Fujitsu logo is on the screen.

**POINT**

When error messages occur see Section Five, pages 80-82, for help in understanding the meaning and required actions to be taken.

IDENTIFYING THE DRIVES

Your notebook uses drive letters (Example A:, B:, C:, D:, E:) to identify internal and external devices such as hard drives, floppy disk drives, CD-ROM drives and PC Cards. The most commonly assigned drive designators are listed below. If you add other devices, the drive designators may be different. See your operating system manual for setting drive designations.

Drive Designators

- A: Floppy disk drive.
Installed inside your notebook.
- B: Not used with your notebook.
- C: Hard drive.
Installed inside your notebook.
- D: DVD/CD-ROM drive.
Installed inside your notebook.

BIOS SETUP UTILITY

The BIOS setup utility is a program that sets the operating environment for your notebook. It is referred to in this publication as the setup utility. Normally, there is no need to change the environment, it is set at the factory for normal operating conditions.

The setup utility configures:

- Standard system parameters, such as date and time.
- Device control feature parameters, such as I/O addresses and boot devices.
- Power Management parameters that help to conserve your notebook's batteries.
- System Data Security feature parameters, such as passwords.

You will only have to change the utility settings if you want to:

- Change the date or time. (You can also do this without entering the setup utility, through your operating system. See your operating system manual.)
- Change the primary boot device.
- Change the power management parameter settings. (Can also be changed in the operating system control panel.)
- Change a port address or other parameter.
- Change an audio parameter setting.
- Change the selection of whether to use the built-in display, an external monitor or both. (Can also be changed in the operating system control panel.)
- Change the system data security settings.

Entering the Setup Utility

You can enter the setup utility whenever you turn on or reset the system. To do this:

1. Allow the system to start booting.
2. As soon as the Fujitsu logo appears on the screen, press the **F2** key.
3. The Main menu of the setup utility then appears with the current settings of the parameters displayed.
4. If you wish to go to one of the other setup menus, press the **←** or the **→** key to find the menu you require.

Resetting to Default Values

If your BIOS values have changed and you wish to return to the default values, follow steps 1 and 2 above, then press **F9**, then press Enter, then press **F10**, then press **Enter** and your BIOS will be returned to its default values.

BIOS Guide

A guide to your unit's BIOS is available on-line. Go to our service and support website at www.8fujitsu.com, click on Self Help Center, select C Series from the pull-down menu, then select BIOS Guides from the pull-down menu on the C Series page. This will take you to the BIOS guide page, where you can select your unit's BIOS from the pull-down menu. To find your unit's BIOS number, check your packing slip.

YOUR SAVE-TO-DISK FILE ALLOCATION

Your notebook comes with an allocation of space on the internal hard drive adequate to operate the Save-to-Disk function for the amount of memory installed at the factory. If you add a memory upgrade module or do not use the Save-to-Disk function and wish to free up the disk space, you will need to change your allocation. The utility to change the allocations is PHDISK.EXE and is activated from the MS-DOS prompt.

PHDISK allows you to perform five different functions related to the Save-to-Disk space on your internal hard drive. They are:

1. Allocate a space for the Save-to-Disk function.
2. Remove all space allocation for the Save-to-Disk function.
3. Find out details about the hard drive and the current Save-to-Disk space allocation.
4. Re-allocate space and mark bad blocks in the space allocated to the Save-to-Disk function when a disk error has occurred.
5. Find out how much space is needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive.

To find out how much space is needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive, do the following:

1. Click on Start.
2. Click on Shut Down
3. From the Shut Down menu select the restart option.
4. When the Fujitsu Logo appears on your screen press **F8** immediately, before the Windows 98 banner appears on the screen.
5. Select **6. Safe mode command prompt only**, then press **Enter**.
6. At the `c:\>` prompt, type `cd fujitsu`, then press **Enter**.
7. At the `c:\> fujitsu` prompt, type `PHDISK`. Press the **Enter** key.
8. The screen will display the amount disk space needed to perform the Save-to-Disk function with the current memory configuration and how much space is being used by the existing Save-to-Disk file.

The screen will display the amount disk space needed to perform the Save-to-Disk function with the current memory configuration and

how much unused space is available on the internal hard drive.

To find out details about the hard drive and the current Save-to-Disk space allocation, do the following:

1. Click on Start.
2. Click on Shut Down
3. From the Shut Down menu select the restart option.
4. When the Fujitsu Logo appears on your screen press **F8** immediately, before the Windows 98 banner appears on the screen.
5. Select **6. Safe mode command prompt only**, then press **Enter**.
6. At the `c:\>` prompt, type `cd fujitsu`, Press the **Enter** key.
7. The screen will display the size of the space currently allocated to the Save-to-Disk function and other parameters about the space and the hard drive.

To remove all space allocation for the Save-to-Disk function, do the following:

1. Click on Start.
2. Click on Shut Down.
3. From the Shut Down menu select the restart option.
4. When the Fujitsu Logo appears on your screen press **F8** immediately, before the Windows 98 banner appears on the screen.
5. Select **6. Safe mode command prompt only**, then press **Enter**.
6. At the `c:\>` prompt, type `cd fujitsu`, then press **Enter**.
7. Type `PHDISK /DELETE /FILE`
Press the **Enter** key.

The utility will remove the space allocation for the Save-to-Disk function and free that space for other use.

If you have just installed a new Memory Upgrade Module, or have a read or write error while going into Save-to-Disk mode, you will need to reset your Save-to-Disk parameters.

To reset the Save-to-Disk parameters, use the procedure below.

Resetting the Save-to-Disk Parameters:

1. Click on Start.
2. Click on Shut Down.
3. From the Shut Down menu select the restart option.
4. When the Fujitsu Logo appears on your screen press **F8** immediately, before the Windows 98 banner appears on the screen.
5. Select **6. Safe mode command prompt only**, then press **Enter**.
6. At the `c:\>` prompt, type `cd fujitsu`, then press **Enter**.

7. At the `c:\>fujitsu` prompt, type `phdisk / delete / file`, then press **Enter**.
8. The press any key to restart the computer.
9. When the Fujitsu Logo appears on your screen press **F8** immediately, before the Windows 98 banner appears on the screen.
- 10 At the `c:\>` prompt, type `cd fujitsu`, then press **Enter**.
11. At the `c:\fujitsu` prompt, type `phdisk / create / file`, the press **Enter**.
12. The press any key to restart the computer.



CAUTION

Never use PARTITION in place of FILE with the PHDISK Utility or you will reformat your internal hard drive and all data, applications and operating system will be destroyed.

User Installable Features

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SECTION FOUR

USER INSTALLABLE FEATURES

Your LifeBook C Series has a number of user installable features:

- A Battery bay on the underside of your notebook allows you to replace the internal Lithium ion battery with a second one.
- PC Card slots in the left side panel of your notebook allow you to install PC Cards, IC memory cards (SRAM card) or Zoomed Video cards (Slot 1 only).
- A compartment under the keyboard of your notebook allows you to install a memory upgrade module.
- A microphone jack on the right side of your notebook allows you to connect a mono microphone.
- A stereo line in jack on the right side of your notebook allows you to connect a sound source such as a cassette recorder.
- A wireless infrared (IR) mouse receiver on the lower right side of the screen allows the use of the optional FPC IR Mouse.
- A headphone jack on the right side of your notebook allows you to connect headphones or powered speakers.
- A PS/2 port on the back of your notebook allows you to connect an external mouse, keyboard or numeric keypad.
- A USB port in the back of your notebook allows you to connect a Universal Serial Bus device.
- An Modem (RJ-11) jack on the right side of your notebook allows you to connect a telephone line to the internal modem.
- A serial port in the back of your notebook allows you to connect serial devices, such as RS-232C pointing devices or modems.
- A parallel port in the back of your notebook allows you to connect a parallel printer, photo or text scanner, etc.
- An external monitor port in the back of your notebook allows you to connect an external monitor.

This section describes how to install and remove equipment for each of the expansion features.

LITHIUM ION BATTERY

Lithium ion Battery

Your Lithium ion battery is durable and long lasting but should not be exposed to extreme temperatures, high voltages, chemicals or other hazards.

Warm Swapping

Your C Series notebook comes equipped with a bridge battery. A bridge battery allows a charged Lithium ion battery to be exchanged for a discharged one by "warm-swapping". To warm-swap, have a charged battery ready to install, put your notebook in Suspend mode, remove the low battery and quickly insert the charged battery. The bridge battery capacity is not large, and can vary with the condition of your notebook, so you will have 3 minutes at the most to make the change.

Batteries can, of course, also be "cold-swapped", i.e. with the notebook powered off and the AC adapter disconnected. In this case there is no time limit.

User Installable Features

Replacing the Battery

The battery is installed in the battery bay on the underside of your notebook. (See Figure 4-1.)

With the purchase of an additional battery, you can have a fully charged spare to swap with one that is not charged. To swap batteries, have a charged battery ready to install and follow the steps below:

1. Press the Power button to put the notebook into suspend mode. (Or shut down your notebook and disconnect the AC adapter if you wish to cold-swap.)
2. Close your display and stand your notebook on its right panel with the top facing you.
3. Press down on the battery release panel and slide it way from you.
4. Set your notebook down gently on its top, with the left panel facing you.
5. Slide the battery pack away from the connector until it stops.
6. Lift the battery out of the bay.

7. Place the charged battery flat into the bay with the bottom up and the release panel away from you, approximately one quarter inch away from the connector in the notebook.
8. Slide the new battery onto the connector.
9. Slide the battery release panel down until it clicks into place.
10. Press the Power button to resume from suspend mode if you are warm-swapping, or to power on your notebook if cold-swapping.

Batteries should be removed and stored separately in a cool dry place if your notebook is not going to be used for an extended period of time.

**CAUTION**

If the Lithium ion battery connector is not fully seated, you may not be able to use your notebook or charge your battery.

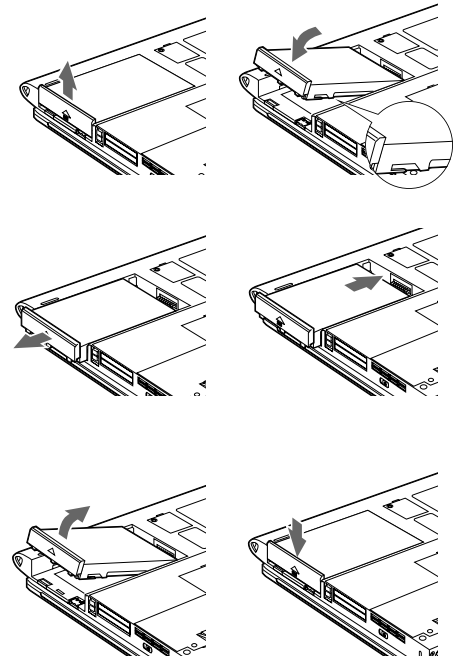


Figure 4-1 Replacing the Battery

**POINT**

Under federal, state or local law it may be illegal to dispose of batteries by putting them in the trash. Please take care of our environment and dispose of batteries properly. Check with your local government authority for details regarding recycling or disposing of your old battery, or contact your support representative at 1-800-8FUJITSU (1-800-838-5487).

PC CARDS

PC Cards perform a wide variety of functions, and are ideal for mobile computers.

Some available PC Cards:

- Fax/data modem cards (Type II).
- Local area network (LAN) cards (Type II).

- Wireless LAN cards (Type II).
- IDE solid-state disk cards (Type II).
- SCSI cards (Type II).
- Zoomed Video cards (Type II, bottom slot only).
- ATA cards (Type III).
- Other PC Cards that conform to PCMCIA 2.1 or CardBus standards.

For further information, refer to the instructions supplied with your PC Card.

Caring for PC Cards

PC Cards are durable; however, you must treat them with care. The documentation supplied with your PC Card will provide specific information but you should pay attention to the following points:

- To keep out dust and dirt, store PC Cards in their protective sleeves when they are not installed in your notebook.

- Avoid prolonged exposure to direct sunlight or excessive heat.
- Keep the cards dry.
- Do not flex or bend the cards, and do not place heavy objects on top of them.
- Do not force cards into the slot.
- Avoid dropping cards, or subjecting them to excessive vibration.

Installing PC Cards in Your Notebook

PC cards are installed in the PC Card slots in the left side panel of your notebook. Some PC Cards will not work when all possible devices are enabled. If a PC Card is not recognized, you may need to open the Control panel, the System folder, and then the Device Manager, and choose a device to disable so that the resources can be used by the PC Card.

User Installable Features



CAUTION

Do not insert a PC Card into a slot if there is water or any other substance on the card; you may permanently damage the card, your notebook, or both.

To install a PC Card:

1. See your PC Card manual for instructions on installation of that specific card.
2. Make sure that there is not already a PC Card in the slot. If there is, eject it, as described in Removing PC Cards.



CAUTION

Some PC Cards can only be installed or removed with the power Off. Please check the card documentation for correct usage.

3. Insert the PC Card in the card slot, with the product name label facing up. (Figure 4-2.)
4. When the PC Card is fully inserted, the eject button will pop out.
5. Flip this button toward the front of your notebook to fold it out of the way.
6. When the card is installed, lock it in place by sliding the Lock button toward the front of your notebook. (Figure 4-2.)



CAUTION

Installing or removing a card while your notebook is in the process of going through the power on or power off sequence may damage the card and/or your notebook.

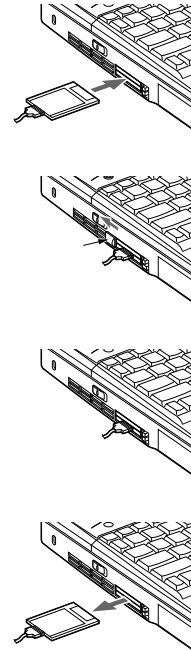


Figure 4-2 Installing and Removing a PC Card



CAUTION

Windows 98 SE has a shutdown procedure for PC Cards that must be followed before beginning to remove a card.

Removing PC Cards

If you wish to remove or replace the PC Card, use the following procedure:

1. Close applications that are using the PC Card.
2. Double-click on the PC Card indicator on the Windows taskbar.

From the PC Card Properties Window:

3. Select the card to be removed and click on the **Stop** button.
4. Verify that the **You can safely remove your card** message appears.

5. If the device cannot be removed message appears, save all files, close all applications, exit Windows 98 SE and then shutoff the power with the power switch. (See *Power Off* on page 17.)
6. Slide the lock toward the rear of your notebook to release the card.
7. Flip the eject button toward the rear of your notebook until it is fully extended.
8. Press the eject button in until it is flush with the side of your notebook.
9. Grasp the card and pull it clear of your notebook. (See *Figure 4-2*.)



CAUTION

If the PC Card has an external connector and cable, do not pull on this cable when removing the card.

PARALLEL PORT DEVICES

To connect a parallel interface device to the parallel port, be sure that the connector is the right size and aligned, then push in until it is fully seated. When it is seated, tighten the hold-down screw on each end of the connector. (See *Figure 1-7* on page 9.)

SERIAL PORT DEVICES

To connect a Serial (RS-232C) device to the serial port, be sure that the connector is the right size and aligned, then push in until it is fully seated. When it is seated, tighten the hold-down screw on each end of the connector. (See *Figure 1-7* on page 9.)

USB DEVICES

When installing a device on the USB Port, be sure that the connector is the right size, aligned, and fully seated. (See *Figure 1-7* on page 9.)

MICROPHONE

Make sure that your mono microphone is equipped with an 1/8" (3.5 mm) mono mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. (See *Figure 1-6* on page 8.)

STEREO LINE IN DEVICE

Make sure that your stereo line in audio device, a cassette recorder, for example, is equipped with an 1/8" (3.5 mm) stereo mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. (See Figure 1-6 on page 8.)

HEADPHONES

Make sure that your stereo headphones are equipped with an 1/8" (3.5 mm) stereo mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. (See Figure 1-6 on page 8.)



POINT

Plugging in headphones disables the built-in stereo speakers.

TELEPHONE LINES

To attach a telephone line to the internal modem open the rear panel connector cover or with the cover closed slide the panel in the connector cover slightly opened to reveal the Modem (RJ-11) jack. Plug one end of the tele-

phone cable into the telephone line outlet. Orient the telephone cable with the release latch on the connector up. Push it into the jack until it clicks and latches. (See Figure 1-6 on page 8.)



CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire notebook. Consult your PBX manufacturer's documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem.

MOUSE, KEYBOARD OR KEYPAD

Make sure the connector on your device is the correct PS/2 type. Align the arrow on the connector to point to the bottom of your notebook and push it in until the connector seats. A mouse, keyboard or keypad may be installed

and automatically recognized by your notebook without restarting or changing setups. (See Figure 1-7 on page 9.)

EXTERNAL MONITOR

You may install an external monitor on the external monitor port on the rear panel of your notebook. Make sure that the wide side of the connector is down and attach it to the port by pushing in until it is seated, then tighten the hold-down screw on each end of the connector. (See Figure 1-7 on page 9.)



CAUTION

Pressing **F10** while holding down the **Fn** key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, external monitor only, or both built-in display panel and external monitor.

THEFT PREVENTION LOCK

A physical security system lock can be installed on the left rear panel of your notebook. (See Figure 1-5 on page 8 for the location of the lock slot.) Simply insert the key end of your security system in the slot, rotate 90 degrees and lock.

MEMORY UPGRADE MODULE

Your notebook has high speed SDRAM installed. To increase your memory capacity, you may install a memory upgrade module in the memory upgrade compartment under the status display panel of your notebook. You may also replace the original memory module to further increase your notebook's system memory. The memory upgrade module is a dual-in-line memory module (DIMM). You may add modules of different capacity. SDRAM modules are required. Please refer to the Accessories Insert for the available options.



CAUTION

Never remove screws except the ones specifically shown in the directions for installing and removing the memory upgrade module.

To Install a Memory Upgrade Module:

1. Shut Down your notebook (see *Power Off* on page 17) and remove any power adapter (AC or auto/airline).
2. Using the tip of your Phillips head screw driver, carefully pry the screw covers out of the screwholes just above both ends of your keyboard.
3. Carefully remove the two screws.
4. Press your display all the way open, then carefully work the panel around the status indicator display loose, and set it out of the way.
5. Lift the back of the keyboard approximately one quarter of an inch, and then pull it away from you. Do not pull it too far, as it is still connected.

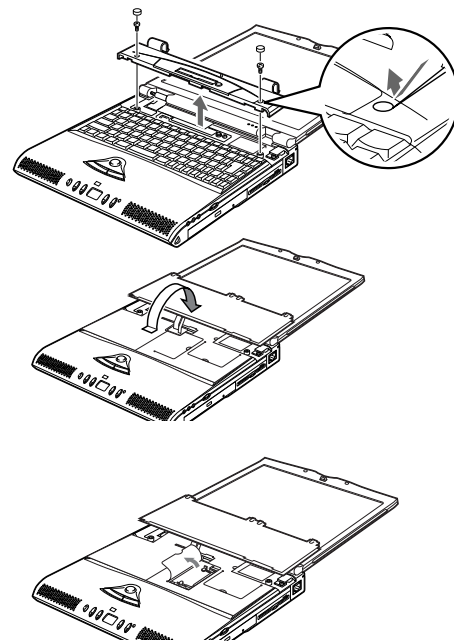


Figure 4-3 Opening the Memory Upgrade Compartment

User Installable Features

6. Flip the keyboard away from you, and set it down on the screen.
7. In the center of the plastic sheeting under the keyboard is a small notch facing the right side on your notebook. Ease your fingernail under this notch, and lift the flap to your left, exposing the memory upgrade slot.

**CAUTION**

The memory upgrade module can be severely damaged by electro-static discharge (ESD). Be sure you are properly grounded when handling and installing the module.

8. Align the memory upgrade module with the chip side up. Align the connector edge of the memory upgrade module with the connector slot in the compartment. The connector will be pointing toward your right. (Figure 4-4.)
9. Insert the memory upgrade module at a 45° angle. (Figure 4-4.) Press the connector edge of the module firmly down and into the connector.

10. Press the memory upgrade module down into the compartment until it lodges under the retaining clip. You will hear a click when it is properly in place.
11. Lay the flap of plastic sheeting back into place.
12. Flip the keyboard back over, and slide it back into place with the tabs going into the slots to the front of the notebook and holding the back of the keyboard approximately on quarter inch up.
13. Let the back of the keyboard down, back into place.
14. Carefully press the panel which you removed back into place
15. Replace the screws and the screw covers.

The memory upgrade module is not something you routinely remove from your notebook. Once it is installed, you should leave it in place unless you want to increase system memory capacity.

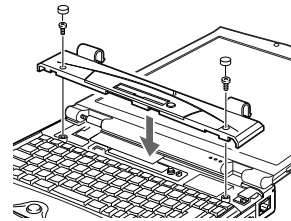
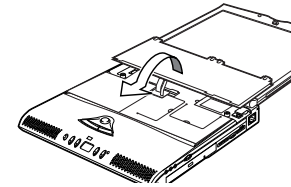
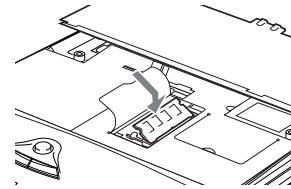


Figure 4-4 Installing a Memory Upgrade Module and closing the compartment

To Replace the original system memory:

Follow steps 1 to 6 above, then do the following:

- At the right of the plastic sheeting is a small notch facing towards you. Ease your fingernail under this notch, and lift the flap back exposing the memory upgrade slot.
- Align the memory upgrade module with the chip side up. Align the connector edge of the memory upgrade module with the connector slot in the compartment. The connector will be pointing towards you.

Then follow steps 9 thru 15 to complete this upgrade.

**CAUTION**

Before you install or remove the memory upgrade module, save changes and close all files and turn power off to your notebook. (See *Power Off on page 17.*)

**POINT**

After installing your added memory module, you must complete the Resetting the Save-to-Disk Parameters procedure in order for the Save-to-Disk mode to operate properly on your LifeBook. (See *page 46.*)

To Remove a Memory Upgrade Module:

- Perform steps 1 through 7 of To Install a Memory Upgrade Module.
- Pull the clips sideways away from each side of the memory upgrade module at the same time.
- While holding the clips out, remove the module from the slot by lifting it up and pulling towards the left of your notebook.
- Store the memory upgrade module in a static guarded sleeve.

- Close the keyboard by following the instructions in steps 11 and 15 of the instructions for To Install a Memory Upgrade Module.

Checking the Computer**Recognition of New Memory Capacity**

When you have changed system memory capacity by adding or removing a memory upgrade module, be sure to check that your notebook has recognized all of the memory. You can check memory capacity by looking at the Main menu of the setup utility:

- Turn on power using the power switch.
- Enter the setup utility by pressing the **F2** key as soon as the Fujitsu logo appears on the screen. (See *page 44.*)
- The System Memory and the Extended Memory capacity, as detected by your notebook during the Power On Self Test (POST), are displayed at the bottom of the Main menu screen.

User Installable Features

Example: A system with 32MB of memory will display 640K System Memory, 31MB Extended Memory.

When you have installed additional memory, the display should change. The chart below shows you the possible displays. In the chart, slot 1 is the slot to the right of your notebook, with the connector facing towards you, where your original RAM memory is installed. Slot 2 is the upgrade slot located in the center of your notebook with the connector facing to the right.

| Installed | | | Displayed | |
|-----------|--------|---------------------|---------------|-----------------|
| Slot 1 | Slot 2 | Total RAM Installed | System Memory | Extended Memory |
| 32MB | 0 | 32MB | 640K | 31MB |
| 32MB | 32MB | 64MB | 640K | 63MB |
| 32MB | 64MB | 96MB | 640K | 95MB |
| 32MB | 128MB | 160MB | 640K | 159MB |
| 64MB | 0 | 64MB | 640K | 63MB |
| 64MB | 32MB | 96MB | 640K | 95MB |
| 64MB | 64MB | 128MB | 640K | 127MB |
| 64MB | 128MB | 192MB | 640K | 191MB |
| 128MB | 0 | 128MB | 640K | 127MB |
| 128MB | 32MB | 160MB | 640K | 159MB |
| 128MB | 64MB | 192MB | 640K | 191MB |
| 128MB | 128MB | 256MB | 640K | 255MB |

If the total memory displayed is not what you believe it should be, check that your memory upgrade module is properly installed. If it is properly installed and the capacity is not correctly recognized, see the Troubleshooting Section starting on page 60.

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SECTION FIVE TROUBLESHOOTING

The LifeBook C Series from Fujitsu is sturdy and subject to few problems in the field. However, you may encounter simple setup or operating problems that you can solve on the spot, or problems with peripheral devices, that you can solve by replacing the device. The information in this section helps you isolate and resolve some of these straightforward problems, and identify failures that require service.

IDENTIFYING THE PROBLEM

If you encounter a problem, go through the following procedure before pursuing complex troubleshooting:

1. Make sure the AC adapter is plugged into your notebook and to an active AC power source.
2. Make sure that any card installed in the PC Card slot is seated properly. You can

also remove the card from the slot, thus eliminating it as a possible cause of failure.

3. Make sure that any devices connected to the external connectors are plugged in properly. You can also disconnect such devices, thus eliminating them as possible causes of failure.
4. Go through the boot sequence.
(See Section 2, pages 13-16.)
5. If the problem has not been resolved, refer to the problem guide table, which follows, for more detailed troubleshooting information.
(See page 61.)



POINT

If you keep notes about what you have tried, your support representative may be able to help you more quickly by giving additional suggestions over the phone.



CAUTION

Do not return a failed notebook to your supplier until you have talked to a support representative.

6. If you have tried the solutions suggested in Specific Problems without success, contact your support representative:
Toll Free 1-800-8FUJITSU (1-800-838-5487)
Fax 1-901-259-5700
E-mail 8fujitsu@fpc.fujitsu.com
Web Site <http://www.8fujitsu.com>.

Before you place the call, you should have the following information ready so that the customer support representative can provide you with the fastest possible solution:

- Product name.
- Product configuration number.
- Product serial number.
- Purchase date.

Troubleshooting

- PIN (Personal Identification Number) on the card located in the service and support folder.
- Conditions under which the problem occurred.
- Any error messages that have occurred.
- Hardware configuration.
- Type of printer connected, if any.

See the Configuration Label on the bottom of your notebook for configuration and serial numbers. (Refer to Figure 1-8 on page 10.)

SPECIFIC PROBLEMS

Using PC-Doctor

PC-Doctor is a diagnostic program by Watergate Software, Inc. which comes pre-installed on your notebook. If you are an experienced computer user you may find it useful, however, it is intended primarily to help your Fujitsu support representative better serve you.

User Problem Guides

When you have problems with your notebook, try to find the symptoms under the **Problem** column of the table for the feature giving you difficulty. You will find a description of common causes for that symptom under the column **Possible Cause** and what, if anything, you can do to correct the condition under **Possible Solution**.

Remember that it helps to keep notes of what you have tried and the results when you are troubleshooting.

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Problem**Possible Cause****Possible Solution****Audio Problems**

There is no sound coming from the built-in speakers.

- | | |
|--|---|
| <ol style="list-style-type: none">1. The volume knob is turned too low.2. The software volume control is set too low.3. Headphones are plugged into your notebook.4. BIOS audio settings are incorrect.5. Software driver is not configured correctly. | <ol style="list-style-type: none">1. Adjust the volume control knob on the right side of your notebook.2. Adjust the sound volume control settings in your software, both operating system and applications.3. Plugging in headphones disables the built-in speakers, remove the headphones.4. Set the BIOS setup utility, Multimedia Device Configuration submenu of the Advanced menu to the default values. (<i>See page 43.</i>)5. Refer to your application and operating system documentation for help. |
|--|---|

DVD/CD-ROM Drive Problems

Notebook fails to recognize DVD/CD-ROM.

- | | |
|---|--|
| <ol style="list-style-type: none">1. Shipping card is still in the DVD/CD-ROM drive tray.2. DVD/CD-ROM is installed with label face down.3. DVD/CD-ROM is not pushed down onto raised center circle of drive.4. DVD/CD-ROM tray is not latched shut. | <ol style="list-style-type: none">1. Remove shipping card and replace DVD/CD in tray.2. Open DVD/CD-ROM tray and re-install DVD/CD with proper orientation.3. Open DVD/CD-ROM tray and re-install DVD/CD properly.4. Push on the front of the DVD/CD-ROM tray until it latches. |
|---|--|

Troubleshooting

Problem

Notebook fails to recognize DVD/CD-ROM (continued).

The DVD/CD-ROM Access indicator on the Status Indicator panel blinks at regular intervals when no DVD/CD is in the tray or the DVD/CD-ROM drive is not installed.

Possible Cause

5. Setup utility is set to something other than DVD/CD-ROM or Auto for the Secondary Master Controller.
 6. Wrong drive designator was used for DVD/CD-ROM in the application.
 7. Windows DVD/CD auto insertion function is disabled.
 8. DVD/CD is dirty or defective.
1. The Windows DVD/CD auto insertion function is active and is checking to see if a DVD/CD is ready to run.

Possible Solution

5. Revise BIOS settings to set the Secondary Master correctly. (See *Main menu and Primary Master submenu in the BIOS guide. See page 44 for more information.*)
 6. Verify the drive designator used by the application is the same as the one used by the operating system. When the operating system is booted from a DVD/CD-ROM drive designations are automatically adjusted. (See *Boot Options submenu in the BIOS guide. See page 44 for more information.*)
 7. Start the DVD/CD from the desktop or application software or re-enable the Windows DVD/CD auto insertion function. (See *DVD/CD-ROM Access Indicator on page 22 for more information.*)
 8. Wipe DVD/CD with a non-abrasive CD cleaning cloth and reinsert. If it still will not work try another DVD/CD in the drive.
1. This is normal. You can disable this function if you wish. (See *DVD/CD-ROM Access Indicator on page 22 for more information.*)

Problem**Floppy Disk Drive Problems**

You cannot access your floppy disk.

Possible Cause

1. You tried to write to a write protected floppy disk.
2. Floppy disk is not loaded correctly.
3. BIOS setup utility has Diskette Controller: Disabled.
4. Security is set to protect access to floppy disk data (shows as 5 1/4 (A:).)

Possible Solution

1. Eject the floppy disk and set it to write enabled. (See page 31.)
2. Eject floppy disk, check orientation and re-insert. (See *Floppy Disk Drive on pages 30-31.*)
3. Revise the setup utility Main menu settings. (See *Main Menu in the BIOS guide. See page 44 for more information.*)
4. Verify your password and security settings. Security should have Diskette Access: All.

Hard Drive Problems

You can not access your hard drive.

1. The setup utility is set to something other than the characteristics of your internal hard drive.

1. Revise BIOS settings to set both Primary Master and Primary Slave correctly. (See *Main Menu and Primary Master Submenu in the BIOS guide. See page 44 for more information.*)

Troubleshooting

Problem

You can not access your hard drive (continued).

Possible Cause

2. The wrong drive designator was used by an application when a bootable CD-ROM was used to start the notebook.
3. Security is set so operating system can not be started without a password.

Possible Solution

2. Verify drive designator used by application is in use by the operating system. When the operating system is booted from a CD-ROM, drive designations are automatically adjusted. *(See Primary Master Submenu in the BIOS guide. See page 44 for more information.)*
3. Verify your password and security settings. *(See Security menu in the BIOS guide. See page 44 for more information.)*

Keyboard or Mouse Problems

The built-in keyboard does not seem to work.

1. The notebook has gone into Suspend mode.
2. Your application has locked out your keyboard.

1. Push the Suspend/Resume button.
2. Try to use the ErgoTrac pointing device to access the Start menu and then the ShutDown menu and restart the System. If this fails, then reset your notebook using the reset button located on the rear panel.

You have installed an external keyboard. External keyboard is not functioning.

1. Your external device is not properly installed.
2. Your operating system software is not setup with the correct software driver for that device.

1. Re-install your device.
2. Check your device and operating system documentation and activate the proper driver.

Problem

You have connected an external keyboard or a mouse and it seems to be locking up the system.

Possible Cause

1. Your operating system software is not setup with the correct software driver for that device.
2. Your system has crashed.

Possible Solution

1. Check your device and operating system documentation and activate the proper driver.
2. Restart your system using the reset button on the rear panel.

Memory Problems

Your power on screen or Main menu of the BIOS setup utility information does not show the correct amount of installed memory.

1. Your memory upgrade module is not properly installed.
2. You have a memory failure.

1. Remove and re-install your memory upgrade module. (*See Memory Upgrade Module on pages 54-57.*)
2. Make sure display of error messages is enabled (*See Boot Options Submenu in the BIOS guide. See page 44 for more information.*) and check for Power On Self Test (POST) messages. (*See pages 80-82 for possible messages and their meanings.*)

Modem Problems

Messages about modem operation.

1. Messages about modem operation are generated by whichever modem application is in use.

1. See your application software documentation for additional information.

Troubleshooting**Problem****Parallel, Serial, and USB Device Problems**

You have installed a parallel-port device, a serial-port device or a USB device. Your notebook does not recognize the device, or the device does not seem to work properly.

**CAUTION**

Due to ongoing changes in USB technology and standards, not all USB devices and/or drivers are guaranteed to work.

Possible Cause

1. The device is not properly installed.
2. The device may have been installed with an application running and your notebook doesn't know it's there.
3. Your software may not have the correct software driver active.
4. You may have the wrong I/O address selected for your device.
5. Your device and another device are assigned the same I/O address.
6. Parallel port is set to output only.

Possible Solution

1. Remove and re-install the device.
(See Parallel Port Devices, Serial Port Devices or USB Devices on page 52.)
2. Close your application and restart your notebook.
3. See your software documentation and activate the correct driver.
4. See your device documentation and software documentation to determine the required I/O address.
5. Check all I/O addresses in the BIOS Setup Utility and your other installed hardware and software and make sure there are no duplications.
6. Check Parallel port settings in BIOS, and set to Bi-directional or Ecp.

Problem**Possible Cause****Possible Solution****PC Card Problems**

A card inserted in the PC Card slot does not work or is locking up the system.

1. The card is not properly installed.
2. The card may have been installed with an application running and your notebook doesn't know it's there.
3. Your software may not have the correct software driver active.
4. You may have the wrong I/O address selected for your PC Card device.
5. Your PC Card device and another device are assigned the same I/O address.

1. Remove and re-install the card.
(See *PC Cards* on pages 50-52.)
2. Close your application and restart your notebook.
3. See your software documentation and activate the correct driver.
4. See your PC Card documentation to determine the required I/O address.
5. Check all I/O addresses in the BIOS setup utility and your other installed hardware and make sure there are no duplications.

Problem**Power Failures**

You turn on your notebook and nothing seems to happen.

Possible Cause

1. The installed battery is completely discharged, and there is no Power adapter (AC or auto/airline) installed.
2. The battery is installed but is completely discharged and the Power adapter (AC or auto/airline) is not plugged in properly.

Possible Solution

1. When the battery is dead there will be a beep when the power is turned on and the notebook will immediately go into Critical Low Battery Suspend mode. (See pages 25-26.) Check the Status Indicator panel to determine the presence and condition of the battery. (See pages 20-21.) Install the battery if it is not installed or a Power adapter if all batteries are dead or unavailable. (See pages 12 and 48-49.)
2. When the battery is dead there will be a beep when the power is turned on and the notebook will immediately go into Critical Low Battery Suspend mode. (See pages 25-26.) Check the Status Indicator panel to determine the presence and condition of the battery and adapter. (See Figures 3-1 and 3-2 on pages 20-21.) Verify that your adapter is connected correctly. (See page 12.)

Problem

You turn on your notebook and nothing seems to happen (continued).

Possible Cause

3. The battery is installed but is completely discharged and the Power adapter (AC or auto/airline) has no power from the AC outlet, airplane seat jack, or the car's cigarette lighter.
4. The battery is installed but is completely discharged and the Power adapter (AC or auto/airline) is faulty.

Possible Solution

3. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Critical Low Battery Suspend mode. (See pages 25-26.) Check the Status Indicator cigarette lighter panel to determine the presence and condition of the battery and adapter. (See Figures 3-1 and 3-2 on pages 20-21.) Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet, if you are using an auto/airline adapter in a car make sure the ignition switch is in the On or Accessories position.
4. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Critical Low Battery Suspend mode. (See pages 25-26.) Verify the cause using the Status Indicator panel to determine the presence and condition of the battery and adapter. (See Figures 3-1 and 3-2 on pages 20-21.) Try a different Power adapter or install a charged optional second battery.

Troubleshooting**Problem**

You turn on your notebook and nothing seems to happen (continued).

Possible Cause

5. There is no battery installed and there is no Power adapter (AC or auto/airline) installed.
6. The battery is installed but is faulty and there is no Power adapter (AC or auto/airline) installed.
7. The battery is low.

Possible Solution

5. Use the Status Indicator panel to verify the presence and condition of the battery. (See Figures 3-1 and 3-2 on pages 20-21.) Install a Power adapter. If the battery is not charged use a Power adapter until it is charged.
6. Use the Status Indicator panel to verify the presence and condition of the battery. (See Figures 3-1 and 3-2 on pages 20-21.) If a battery is indicating a short, remove that battery and operate from another power source or replace that battery.
7. If the battery is dead there will be a beep when the power is turned on and the notebook will immediately go into Critical Low Battery Suspend mode. (See pages 25-26.) Check the Status Indicator panel to determine the presence and condition of the battery. (See Figures 3-1 and 3-2 on pages 20-21.) Use a Power adapter to operate until a battery is charged or install a charged battery.

Problem

You turn on your notebook and nothing seems to happen (continued).

Your notebook turns off all by itself.

Possible Cause

8. The internal battery is completely discharged and the Power adapter (AC or auto/airline) is faulty.

1. The power management parameters are set for auto timeouts which are too short for your operating needs.
2. You are operating on battery only and have ignored a low battery alarm until the batteries are all at the dead battery state and your machine has gone into Dead Battery Suspend mode.

Possible Solution

8. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Critical Low Battery Suspend mode. (See pages 25-26.) Verify the cause using the Status Indicator panel to determine the presence and condition of the batteries and adapter. (See Figures 3-1 and 3-2 on pages 20-21.) Try a different Power adapter or install a charged optional second battery.
1. Use the keyboard or pointer and if that does not restore operation, push the Suspend/Resume button. Check the PowerPanel - settings or close your applications and go to the setup utility Power menu and adjust the timeout values to better suit your operation needs.
2. Install a Power adapter and then push the Suspend/Resume button. (See *Low Battery State* on page 25.)

Troubleshooting

Problem

Your notebook turns off all by itself (continued).

Possible Cause

3. You have a battery failure.
 4. Your Power adapter has failed or lost its power source.
- Your notebook won't work on battery alone.
1. The installed battery is dead.
 2. No battery is installed.
 3. The battery is improperly installed.
 4. Your installed battery is faulty.

Possible Solution

3. Verify the condition of the batteries using the Status Indicator panel (*Figure 3-2 on page 21*), and replace or remove any that are shorted.
 4. Make sure the adapter is plugged in and the outlet has power.
1. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Critical Low Battery Suspend mode. (*See pages 25-26.*) Replace the battery with a charged one or install a Power adapter.
2. Install a charged battery.
 3. Verify that the battery is properly connected by re-installing it.
 4. Verify the condition of the battery using the Status Indicator panel (*Figure 3-2 on page 21*), and replace or remove any that is shorted.

Problem

The battery seems to discharge too quickly.

Possible Cause

1. You are running an application which uses a great deal of power because of frequent hard drive access or CD-ROM access, use of a modem PC Card or of a LAN PC Card.
2. The power savings features may be disabled.
3. The brightness is turned all the way up.
4. The battery has been exposed to high temperatures.
5. The battery is too hot or too cold.
(See Batteries on page 23.)
6. The batteries are very old.

Possible Solution

1. Use a Power adapter for this application when at all possible.
2. Check the Power Management and/or setup utility settings in the Power menu and adjust according to your operating needs.
3. Turn down the brightness adjustment. The higher the brightness the more power your display uses.
4. Replace the battery.
5. Restore the notebook to normal operating temperature. (The Charging icon on the Status Indicator panel will flash when the battery is outside its operating range.)
6. Replace the batteries.

Troubleshooting

Problem

Shutdown and Startup Problems

The Power button does not work.

Possible Cause

1. The Power button is disabled from the Advanced submenu of the Power menu of the setup utility.
2. You did not hold the button in long enough.
3. There may be a conflict with the application software.

Possible Solution

1. Enable the button from the setup utility. *(See page 43.)*
2. Hold the button longer. This may need to be a very long time if your application is preventing the CPU from checking for button pushes.
3. Close all applications, and try the button again.

The system powers up, and displays power on information, but fails to load the operating system.

1. The boot sequence settings of the setup utility are not compatible with your configuration.
2. You have a secured system requiring a password to load your operating system.
3. Internal hard drive was not detected.

1. Set the operating source by pressing the **Esc** key while the Fujitsu logo is on screen or use the **F2** key and enter the setup utility and adjust the source settings from the Boot menu.
2. Make sure you have the right password. Enter the setup utility and verify the Security settings and modify them as appropriate. *(See Security Menu in the BIOS guide. See page 44 for more information.)*
3. Use the BIOS setup utility Main menu, Primary Master submenu to try to auto detect the internal hard drive.

Problem

An error message is displayed on the screen during the notebook turn on (boot) sequence.

Your notebook appears to change setup parameters when you start it.

Video Problems

The built-in display is blank when you turn on your notebook.

Possible Cause

1. Power On Self Test (POST) has detected a problem.
1. BIOS setup changes were not saved when you made them and exited the BIOS setup utility returning it to previous settings.
2. The BIOS CMOS hold-up battery has failed.

1. Something is pushing on the Closed Cover switch. (See *Figure 1-3 on page 5.*)
2. The notebook is set for an external monitor only.

Possible Solution

1. See the Power On Self Test (POST) Messages (See pages 80-82), to determine the meaning and severity of the problem. Not all messages are errors; some are simply status indicators.
 1. Make sure you select Save Changes And Exit when exiting the BIOS setup utility.
 2. Contact your support representative for repairs. This is not a user serviceable part but is covered in the International Limited Warranty.
1. Clear the Closed Cover switch.
 2. Pressing **F10** while holding down the **Fn** key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are built-in display only, external monitor only, both built-in display and external monitor.

Troubleshooting

Problem

The built-in display is blank when you turn on your notebook (continued.)

The display goes blank by itself after you have been using it.

Possible Cause

3. The angle of the display and the brightness settings are not adequate for your lighting conditions.
 4. The power management timeouts may be set for very short intervals and you failed to notice the display come on and go off again.
 5. The notebook turned on with a series of beeps.
1. The notebook has gone into Video timeout, Standby mode, Suspend mode or Save-to-Disk mode because you have not used it for a period of time.
 2. Something is pushing on the Closed Cover switch. (See Figure 1-3 on page 5.)
 3. The power management timeouts may be set for very short intervals and you failed to notice the display come on and go off again.

Possible Solution

3. Move the display and the brightness control until you have adequate visibility.
 4. Press any key or move the pointer, if this doesn't work press the Suspend/Resume button. (The display may be shut off by Standby mode, Auto Suspend, or Video Timeout.)
 5. Power On Self Test (POST) has detected a failure which does not allow the display to operate. Contact your support representative.
1. Use the keyboard or pointer and if that does not restore operation, push the Suspend/Resume button. You may want to close your application and go to the setup utility Power menu and adjust the timeout values to better suit your operation needs.
 2. Clear the Closed Cover switch.
 3. Press any key or move the pointer, if this doesn't work press the Suspend/Resume button.

Problem

The Built-in Display does not close.

The Built-in Display has bright or dark spots.

The application display uses only a portion of your screen and is surrounded by a dark band.

You have connected an external monitor and it does not come on.

Possible Cause

1. A foreign object, such as a paper clip, is stuck between the display and the keyboard.

1. If the spots are very tiny and few in number, this is normal for a large LCD display.
2. If the spots are numerous or large enough to interfere with your operation needs.

1. You are running an application that does not support 800 x 600 pixel resolution display and display compression is enabled.

1. Your BIOS setup is not set to enable your external monitor.

2. Your external monitor is not properly installed.

Possible Solution

1. Remove all foreign objects from the keyboard.

1. This is normal; do nothing.

2. Display may be faulty; contact your support representative.

1. Display compression gives a clearer but smaller display for applications that do not support 800 x 600 pixel resolution. You can fill the screen but have less resolution by changing your display compression setting, *(See Video Features Submenu of the Advanced Menu in the BIOS guide. See page 44 for more information.)*

1. Try toggling the video destination by pressing **Fn** and **F10** together or check your BIOS setup and enable your external monitor. *(See Video Features Submenu of the Advanced Menu in the BIOS guide. See page 44 for more information.)*

2. Reinstall your device. *(See External Monitor on page 53.)*

T r o u b l e s h o o t i n g**Problem**

You have connected an external monitor and it does not come on (continued).

Miscellaneous Problems

An error message is displayed on the screen during the operation of an application.

Possible Cause

3. Your operating system software is not setup with the correct software driver for that device.
4. Your external monitor is not compatible with your notebook.

1. Application software often has its own set of error message displays.

Possible Solution

- 3 Check your device and operating system documentation and activate the proper driver.
 4. See your monitor documentation and the External Monitor Support portions of Appendices on pages 93.
-
1. See your application manual and help displays screens for more information. Not all messages are errors; some may simply be status.

POWER ON SELF TEST MESSAGES

The following is an alphabetic list of error-and-status messages that Phoenix BIOS and/or your operating system can generate and an explanation of each message. Error messages are marked with an *. Comments in italics are suggestions of possible actions for you to consider, or risks resulting from ignoring the message. The most common errors are marked with a #. If an error message is displayed that is not in this list, write it down and check your operating system documentation both on screen and in the manual. If you can find no reference to the message and its meaning is not clear, contact your support representative for assistance.

nnnn Cache SRAM Passed Where nnnn is the amount of system cache in kilobytes successfully tested by the Power On Self Test. (This can only appear if you have an SRAM PC Card installed.)

***Diskette drive A error or Diskette drive B error** Drive A: or B: is present but fails the BIOS Power On Self Test diskette tests. Check

to see that the drive is defined with the proper diskette type in the Utility Setup. (*See page 43.*) If the disk drive is properly defined and installed, avoid using it and contact your support representative.

***Extended RAM Failed at offset: nnnn**

Extended memory not working or not configured properly. If you have an installed memory upgrade module, verify that the module is properly installed. If it is properly installed, you may want to check your Windows Setup to be sure it is not using unavailable memory until you can contact your support representative.

nnnn Extended RAM Passed Where nnnn is the amount of memory in kilobytes successfully tested.

***Failing Bits: nnnn** The hex number nnnn is a map of the bits at the memory address (in System, Extended, or Shadow memory) which failed the memory test. Each 1 (one) in the map indicates a failed bit. This is a serious fault that might cause you to lose data if you continue. Contact your support representative.

***Fixed Disk x Failure or Fixed Disk Controller Failure** (where x = 1-4) Fixed disk is not working or not configured properly. This may mean that the hard drive type identified in your Setup Utility does not agree with the type detected by the Power On Self Test. Run the Setup Utility to check for the hard drive type settings and correct them if necessary. If the settings are OK and the message appears when you restart the system, there may be a serious fault which might cause you to lose data if you continue. Contact your support representative.

***Incorrect Drive A type – run SETUP** Type of floppy drive A: not correctly identified in Setup. This means that the floppy disk drive type identified in your Setup Utility does not agree with the type detected by the Power On Self Test. Run the Setup Utility to correct the inconsistency.

Troubleshooting

***Invalid NVRAM media type** Problem with NVRAM access. In the unlikely case that you see this message you may have some display problems. You can continue operating but should contact your support representative for more information.

***Keyboard controller error** The keyboard controller test failed. You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.

***Keyboard error** Keyboard not working. You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.

***Keyboard error nn** BIOS discovered a stuck key and displays the scan code for the stuck key. You may have to replace your keyboard but may be able to use an external keyboard until then. Contact your support representative.

***Monitor type does not match CMOS – Run SETUP** Monitor type not correctly identified in Setup. This error probably means your BIOS is corrupted, run the Setup Utility and set all settings to the default conditions. If you still get this error, contact your support representative.

#*Operating system not found Operating system cannot be located on either drive A: or drive C: Enter the Setup Utility and see if fixed disk and drive A: are properly identified and that the boot sequence is set correctly. Unless you have changed your installation greatly, the operating system should be on drive C:. If the setup utility is correctly set your hard drive is probably corrupted and your system may have to be re-installed from your back up media.

***Parity Check 1 nnnn** Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays an error message. This is a potentially data destroying failure. Contact your support representative.

***Parity Check 2 nnnn** Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays an error message. This is a potentially data destroying failure. Contact your support representative.

#*Press <F1> to resume, <F2> to SETUP is displayed after any recoverable error message. Press the **F1** key to continue the boot process or the **F2** key to enter Setup and change any settings.

#*Previous boot incomplete – Default configuration used Previous Power On Self Test did not complete successfully. Power On Self Test loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail also. If using the default settings does not allow you to complete a successful boot sequence, you should turn off the power with the Power Switch and contact your support representative.

***Real time clock error** Real-time clock fails BIOS test. May require board repair. Contact your support representative.

***Shadow RAM Failed at offset: nnnn** Shadow RAM failed at offset nnnn of the 64k block at which the error was detected. You are risking data corruption if you continue. Contact your support representative.

nnnn Shadow RAM Passed Where nnnn is the amount of shadow RAM in kilobytes successfully tested.

***System battery is dead – Replace and run SETUP** The BIOS CMOS RAM memory hold up battery is dead. This is part of your BIOS and is a board mounted battery which requires a support representative to change. You can continue operating but you will have to use Setup Utility default values or reconfigure your Setup Utility every time you turn off your notebook. This battery has an expected life of 2 to 3 years.

System BIOS shadowed System BIOS copied to shadow RAM.

***System CMOS checksum bad – run SETUP** BIOS CMOS RAM has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in BIOS memory. Run Setup and reconfigure the system.

***System RAM Failed at offset: nnnn** System memory failed at offset nnnn of in the 64k block at which the error was detected. This means that there is a fault in your built-in memory. If you continue to operate you risk corrupting your data. Contact your support representative for repairs.

nnnn System RAM Passed Where nnnn is the amount of system memory in kilobytes successfully tested.

***System timer error** The timer test failed. The main clock that operates the computer is faulty. Requires repair of system board. Contact your support representative for repairs.

UMB upper limit segment address: nnnn Displays the address of the upper limit of Upper Memory Blocks, indicating released segments of the BIOS memory which may be reclaimed by a virtual memory manager.

Video BIOS shadowed Video BIOS successfully copied to shadow RAM.

Troubleshooting

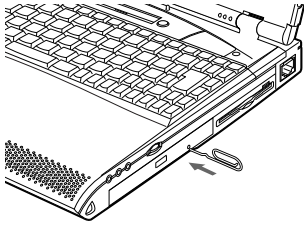


Figure 5-1 Emergency CD-ROM Tray Release

EMERGENCY CD-ROM TRAY RELEASE

If for some reason the eject button fails, you can open the CD-ROM tray with a paper clip or similar tool inserted into the eject hole in the far right side of the front of the tray. Straighten one side of a paper clip and push it gently into the hole. The tray will pop out a short distance.

MODEM SETUP AND COMMANDS

The operating system and application software that is factory installed detects the modem characteristics and provides the necessary command strings to operate the modem. The internal modem operation is controlled by generic AT commands from the operating system and application software. The standard long form result codes may, in some cases, be displayed on your screen to keep you informed of the actions of your modem. The operating system and application software may suppress display of the result codes.

Examples of result codes are:

```
OK
NO CARRIER
NO DIALTONE
CONNECT 53000
    (Connection complete at 53,000 bps.)
ERROR
FAX
RING (This means an incoming call.)
BUSY
NO ANSWER
```

When using the internal modem with applications which are not factory installed see the application documentation.

RECOVERY CD-ROM

Included with your notebook (in the Accessories box) is an Emergency Recovery CD-ROM with the following content:

A backup copy of the software originally installed by Fujitsu on your new Fujitsu LifeBook (can only be used on the listed LifeBook models).

Sets of device drivers and utilities (in specific directories) that are unique to your notebook configuration for use as documented below.

Read-me files that provide additional useful information for items on this CD-ROM.

If you have access to the internet, visit the Fujitsu PC Corporation Web Site at www.8fujitsu.com to check for the most current information and hints on how to perform recovery and system updates.

Restoring Your Pre-installed Software from CD-ROM

The Emergency Recovery CD-ROM enables restoration of your notebook disk drive con-

tents as they were originally shipped from the factory. Most often this is necessary if files or software programs (only those files/programs that came pre-installed) become corrupt or accidentally erased.

You have two options available when performing recovery:

1. Recover Hard Drive without Format. This choice replaces all the original factory installed files and program structures without eliminating your data files. You will have to re-install any software that was not included with the computer when you bought it (but your data will be intact as long as the installation of the additional programs is performed in the same manner).
2. Format and Recover Hard Drive. This choice removes all the information on the hard disk. If you choose this option, you will lose any software you have installed and any other files you created since you setup your computer. You will have to re-install any software that was not included with the computer when you bought it.



POINT

It is recommended that you back-up all data files prior to performing either of the recovery options.



POINT

Make certain you have your Operating System Product ID # available (from the Certificate of Authenticity) prior to performing recovery. Once the process is complete and you re-start your notebook, you will be required to perform all the setup steps as when the computer was first bought. (See the section *Starting Your LifeBook for the First Time*).



CAUTION

User data and user installed software CAN NOT be recovered from the Emergency Recovery CD.

Troubleshooting

To Run the Emergency Recovery Program

To use this portion of the CD-ROM, your notebook must BOOT (upon power up or full system reset/restart) from the CD-ROM drive.

1. Insert the Emergency Recovery CD in the CD-ROM drive.
2. If your notebook is running when you insert the CD, exit your operating system and power down the notebook.
3. Start (power up) your notebook.
4. At this point, you must either change your BIOS setup configuration (**F2** key) to have the computer boot from the CD-ROM "first" (if you have not previously done so), or use the Esc key during this boot-up sequence and select the CD-ROM from the menu which will appear. *(For more information and detailed instructions on changing the BIOS setup see pages 43-44.)*
5. If correctly configured to boot from the Recovery CD-ROM, you will notice your system runs a full virus scan of the hard drive and then reaches the Emergency Recovery Welcome screen. If this is not what is displayed, check to see that the Recovery CD is installed in the CD-ROM drive and repeat the previous steps (starting with 2.).

If you received a message, "This program may not be used on your computer", you are using the wrong Recovery CD for this model of notebook. Contact Fujitsu PC Service and Support to obtain the correct CD.
6. Read the information displayed on the Welcome screen, then Click OK.
7. Select one of the two icons displayed in the Emergency Recovery menu and follow the instructions that follow.
8. When recovery is complete, remove the Recovery CD, replace it in its sleeve and store it in a safe location (with your Operating System Manual/Certificate of Authenticity).

9. Restart your notebook.
10. Reset your boot device priority in the BIOS setup as desired.

Your notebook now has all of the software installed that was included when you received it from the factory. You must now load any programs which you purchased and installed after you got your notebook. If you chose the Format and Recover option, you should now restore your data files. If you performed Recovery without format, your data files will still exist (within their original directory structures).



POINT

As long as there is no bootable disk in the CD-ROM drive or the floppy disk drive, your notebook will boot from the hard drive regardless of the BIOS Boot Device Priority setting.

Device Drivers, Utilities and Read-me Files

The Emergency Recovery CD also includes device driver files/directories and specific Lifebook model utilities that give you additional flexibility and functionality for using your Fujitsu notebook.

This section of the CD is only available if your notebook is already functioning from either your hard drive boot/operating system or as a result of using a bootable floppy disk that is configured to recognize the CD-ROM drive.

Please locate and read any of the Read-Me files that are included on the CD. These files will provide information that pertains specifically to the additional files and utilities that are provided on the Recovery CD for your particular Lifebook model.



POINT

As long as there is no boot disk in the CD-ROM drive or the floppy disk drive your notebook will boot from the hard drive, regardless of the operating system source setting.

Your notebook now has all of the software installed that was installed when you received it from the factory. You must now set up the file for your Save-to-Disk function (*see Your Save-To-Disk File Allocation starting on page 44*), load any programs which you purchased and installed after you got your notebook, and restore your data files. If you did not choose the format and recover option your data files will still exist. You are now ready to operate.



POINT

Look for and open files with the extensions .DOC and .TXT.

Care and Maintenance

Caring for Your Notebook 88

Increasing Battery Life 89

Caring for Your Batteries 89

SECTION SIX CARE AND MAINTENANCE

If you use your LifeBook C Series from Fujitsu with care, you will increase its life and reliability. This section provides some tips for looking after the notebook and the battery packs.

CARING FOR YOUR NOTEBOOK

The LifeBook C Series is a durable but sensitive electronic device. Pay attention to the following items when using your LifeBook.

- Make a habit of transporting it in a suitable carrying case.
- Keep it away from food and beverages.
- If you accidentally spill liquid on your notebook:
 1. Turn it on.
 2. Position it so that the liquid can run out.
 3. Let it dry out for 24 hours, or longer if needed.
 4. If your notebook will not boot after it has dried out, call your support representative.
- Avoid exposure to water, sand, dust, and other environmental hazards.
- Do not expose your notebook to direct sunlight for long periods of time as temperatures above 140° F (60° C) may damage your notebook.
- Keep the covers closed on the connectors and slots when they are not in use.
- Do not put heavy or sharp objects on the computer.
- If you are carrying your notebook in a briefcase, or any other carrying case, make sure that there are no objects in the case pressing on the lid of your notebook.
- Do not drop your notebook.
- Clean your notebook with a damp, lint-free cloth. Do not use abrasives or solvents.
- Use a soft cloth to remove dust from the screen.

INCREASING BATTERY LIFE

To increase battery life:

1. Power your notebook through the AC or optional auto/airline adapter whenever possible.
2. If your notebook is running on battery power all day, connect it to the AC adapter overnight to recharge the battery.
3. Keep brightness to the lowest level comfortable.
4. Set the power management for maximum battery life.
5. Put your notebook in Suspend mode when it is turned on and you are not actually using it.
6. Limit your CD-ROM and modem usage.
7. Disable the Windows 98 SE CD automatic insertion function. (*See page 22.*)
8. Always use fully charged batteries.
9. Eject PCMCIA cards when not in use.

CARING FOR YOUR BATTERIES

If your notebook is to be stored for a month or longer, turn the machine on and remove the internal Lithium ion battery. Store your notebook and batteries separately in a cool, dry location. If you store your notebook with a battery installed, the battery will discharge, and battery life will be reduced. In addition, a faulty battery might damage your notebook.



POINT

PMset 98 includes display brightness settings designed to help you manage battery life. This setting is preset for medium brightness when your notebook is running on battery power, and maximum brightness when your notebook is running on AC power. To change these settings:

1. Right click on the PMset 98 icon in your system tray. (The icon is a circle with two vertical lines inside. The system tray is at the right end of your taskbar at the bottom of your desktop.)
2. Click on properties.
3. Click on the Power Control tab.
4. Use your ErgoTrac or mouse to drag the setting for AC or Battery towards either **Dark** or **Bright**.

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APPENDICES SPECIFICATIONS AND GLOSSARY

These appendices provide the hardware and environmental specifications for LifeBook C Series notebooks. Specifications of particular configurations will vary.

WARRANTY

Your notebook is backed by a one year International Limited Warranty and includes toll-free technical support; call 1-800-8FUJITSU (1-800-838-5487.) Check the service kit that came with your notebook for warranty terms and conditions.

LIFEBOOK C SERIES GENERAL SPECIFICATIONS

Microprocessor

Latest high-speed Intel mobile processors.

MEMORY

System Memory (on-board)

SDRAM DIMM (static discharge random access dual in-line memory module)

BIOS Memory

512KB Flash ROM.

256 Bytes CMOS-RAM with back-up battery.

Video RAM

ATI RAGE Mobility-P, 2x AGP.

4MB DRAM.

Floppy Disk Drive

One 3.5" floppy disk drive which accommodates a 1.44MB or a 720KB floppy disk.

Hard Drive

One factory installed 2.5" fixed hard drive unit.

Optical Media Drive

One 24x maximum, 5.25", 12.7 mm height fixed CD-ROM drive. Some configurations 4x maximum DVD media/24x maximum CD-ROM media 5.25", 12.7mm height DVD drive.

Audio

SoundBlaster Pro-compatible 32-bit stereo Yamaha sound chip.

Stereo headphone jack, 1 Vrms, or less, minimum impedance 32 Ohms.

Stereo line in jack, 880 mVrms or less, minimum impedance 10K Ohms.

Mono microphone jack, 125 mVp-p or less, minimum impedance 10K Ohms.

Two built-in speakers, 35mm x 20mm, with chamber (Stereo).

One built-in monaural microphone.

Communication

Internal Global 56K fax/data/voice modem, with V. 90 support (56 Kbps data transmission; 14.4 Kbps fax transmission).

IR Port (on rear) IrDA 1.1, HP3600 FIR.

IR Wireless Mouse Receiver (on front) IrDA 1.1 HP3600 FIR.

Video

Zoomed Video support via PC Card Slot 1. (bottom portion of combo slot.)

Pre-Installed Software

Microsoft Windows 98 Second Edition.

Microsoft Press Interactive Training.

Quicken 99 Basic by Intuit.

Microsoft Works by Microsoft.

LapLink Professional by Traveling Software.

Adobe Acrobat Reader.
 McAfee VirusScan by Network Associates, Inc.
 PMSet 98.
 PC Doctor.
 Netscape Communicator.

Input/Output Connections

One combination PC Card slot accommodates Type III or two Type II.
 PCMCIA Standard 2.1 with CardBus support; Zoomed Video support via Slot 1.
 One 6-pin mini DIN PS/2 compatible connector, for external keyboard, external mouse or external numeric keypad.
 One 25-pin D-SUB two-way Centronics type connector for parallel input/output devices; Bi-directional, output only or ECP.
 One 15-pin D-SUB connector for VGA external monitor. (*See Display specifications.*)
 One 9-pin D-SUB connector for RS-232C serial input/output devices.
 One connector for USB (Universal Serial Bus) input/output devices.
 One modular RJ-11 telephone line connector.



CAUTION

The internal modem is designed to the ITU-T V.90 standard. Its maximum speed of 53000bps is the highest allowed by FCC, and its actual connection rate depends on the line conditions. The maximum speed is 33600bps at upload.

One stereo headphone jack.
(See Audio specifications.)
 One mono microphone jack.
(See Audio specifications.)
 One stereo line in jack. (*See Audio specifications.*)

Displays

Built-in color flat-panel TFT LCD display with simultaneous display capability.

External Monitor Support. XGA, SVGA, and VGA compatible CRT displays.

1600 x 1200 pixel resolution,
 64 colors maximum.

Keyboards

Built-in keyboard with all functions of 101 key PS/2 compatible keyboards.
 Total number of keys: 87.
 Function keys: 12, **F1** through **F12**.
 Feature extension key: **Fn**.
 Windows keys: 3, two **Start** keys and one **Application** key.
 Key pitch: 19 mm.
 Key stroke: 3 mm.
 Built-in ErgoTrac pointing device with left and right buttons.
 Built-in palmrest.

External Keyboard Support

PS/2 compatible.

External Numeric Keypad Support

PS/2 compatible.

External Mouse Support

PS/2 compatible.

Power

Batteries

One Lithium ion battery, Rechargeable, 10.8V, 3600mAh.

Bridge Battery

Your C Series notebook comes equipped with a bridge battery. A bridge battery allows a charged Lithium ion battery to be replaced without shutting down the system. The bridge battery capacity is not large, and can vary with the condition of your notebook, so you will have 3 minutes at the most to make the change.



CAUTION

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery conditioning, and other customer preferences. CD-ROM or hard drive usage may also have a significant impact on battery life.

AC Adapter

Autosensing 100-240V AC, 53W, supplying 16V DC to the Notebook,

Power Management

Save-to-Disk, Suspend, Idle and Standby power savings modes. When the battery is fully charged the computer can remain in Suspend mode for approximately 24 hours or more.

Dimensions

Overall Dimensions

Approximately 12.13" x 11.10" x 1.75".
(308 mm x 282 mm x 43 mm.)

Environmental Requirements

Temperature

Operating: 5° to 35° C (41° to 95° F).
Non-operating: -15° to 60° C (5° to 140° F).

Humidity

Operating: 20% to 85%, relative, non-condensing.
Non-operating: 8% to 85%, relative, non-condensing.

Altitude

Operating: 6,094 feet (2,000 m) maximum.

Electro-Static Discharge (ESD)

9 kV.

Theft Prevention Lock

Lock slot on the back of the left side panel for use with physical restraining security systems.

PRE-CONFIGURED MODELS

| Feature | C-4120 | C-5130 | C-6320 | C-6330 |
|---------------|----------------|----------------|-------------------|-------------------|
| Processor | 366MHz Celeron | 400MHz Celeron | 366MHz Pentium II | 400MHz Pentium II |
| Display | 12.1" SVGA TFT | 13.3" XGA TFT | 14.1" XGA TFT | 14.1" XGA TFT |
| System Memory | 32MB | 32MB | 64MB | 64MB |
| HDD | 4.3 GB | 6.4 GB | 6.4 GB | 10.0 GB |
| Optical Drive | CD-ROM | CD-ROM | CD-ROM | DVD |
| Weight | 6.9 lbs | 7.1 lbs | 7.5 lbs | 7.5 lbs |

GLOSSARY

AC Adapter

A device which converts the AC voltage from a wall outlet to the DC voltage needed to power your computer.

Active-Matrix Display

A type of technology for making flat-panel displays which has a transistor or similar device for every pixel on the screen.

Auto/Airline Adapter

A device which converts the DC voltage from an automobile cigarette lighter or aircraft DC power outlet to the DC voltage needed to power your notebook.

BIOS

Basic Input-Output System. A computer program and set of default parameters stored in ROM which tests and operates your computer when you turn it on until it loads your installed operating system from disk. Information from the BIOS is transferred to the installed operating system to provide it with information on the configuration and status of the hardware.

Bit

An abbreviation for binary digit. A single piece of information which is either a one (1) or a zero (0).

bps

An abbreviation for bits per second. Used to describe data transfer rates.

Boot

To start-up a computer and load its operating system from disk, ROM or other storage media into RAM.

Bus

An electrical circuit which passes data between the CPU and the sub-assemblies inside your computer.

Byte

8 bits of parallel binary information.

Cache Memory

A block of memory built into the micro-processor which is much faster to access than your system RAM and used in specially structured ways to make your overall data handling time faster.

CardBus

A faster, 32-bit version of the PC Card interface which offers performance similar to the 32-bit PCI architecture.

CD-ROM

Compact disc read-only memory. This is a form of digital data storage which is read optically with a laser rather than a magnetic head. A typical CD-ROM can contain about 600MB of data.

CMOS RAM

Complementary metal oxide semiconductor random access memory. This is a technology for manufacturing random access memory which requires very low levels of power to operate.

COM Port

Abbreviation for communication port. This is your serial interface connection.

Command

An instruction which you give your operating system. Example: run a particular application or format a floppy disk.

Configuration

The combination of hardware and software that makes up your system and how it is allocated for use.

CRT

Cathode Ray Tube. A display device which uses a beam of electronic particles striking a luminescent screen. It produces a visual image by varying the position and intensity of the beam.

Data

The information a system stores and processes.

DC

Direct current. A voltage or current that does not fluctuate periodically with time.

Default Value

A preprogrammed value to be used if you fail to set your own.

DIMM

Dual In-line Memory Module.

Disk

A spinning platter of magnetic data storage media. If the platter is very stiff it is a hard drive, if it is highly flexible it is a floppy disk, if it is a floppy disk in a hard housing with a shutter it is commonly called a diskette.

Disk Drive

The hardware which spins the disk and has the heads and control circuitry for reading and writing the data on the disk.

Diskette

A floppy disk in a hard housing with a shutter.

DMA

Direct Memory Access. Special circuitry for memory to memory transfers of data which do not require CPU action.

DMI

Desktop Management Interface. A standard that provides PC management applications with a common method of locally or remotely querying and configuring PC computer systems, hardware and software components, and peripherals.

DOS

Disk Operating System (MS-DOS is a Microsoft Disk Operating System).

Driver

A computer program which converts application and operating system commands to external devices into the exact form required by a specific brand and model of device in order to produce the desired results from that particular equipment.

ECP

Extended Capability Port. A set of standards for high speed data communication and interconnection between electronic devices.

ESD

Electro-Static Discharge. The sudden discharge of electricity from a static charge which has built-up slowly. Example: the shock you get from a doorknob on a dry day or the sparks you get from brushing hair on a dry day.

Appendices

Extended Memory

All memory more than the 640KB recognized by MS-DOS as system memory.

FCC

Federal Communication Commission.

Floppy Disk

A spinning platter of magnetic data storage media which is highly flexible.

GB

Gigabyte.

Hard drive

A spinning platter of magnetic data storage media where the platter is very stiff.

Hexadecimal

A decimal notation for the value of a 4 bit binary number. (0-9, A, B, C, D, E, F) Example: 2F in hexadecimal = 00101111 in binary = 47 in decimal.

I/O

Input/Output. Data entering and leaving your computer in electronic form.

I/O Port

A connector and associated control circuits for data entering and leaving your computer in electronic form.

IDE

Intelligent Drive Electronics. A type of control interface for a hard drive which is inside the hard drive unit.

Infrared

Light just beyond the red portion of the visible light spectrum which is invisible to humans.

IR

An abbreviation for infrared.

IrDA

Infrared Data Association. An organization which produces standards for communication using infrared as the carrier.

IRQ

Interrupt Request. An acronym for the hardware signal to the CPU that an external event has occurred which needs to be processed.

KB

Kilobyte.

LAN

Local Area Network. An interconnection of computers and peripherals within a single limited geographic location which can pass programs and data amongst themselves.

LCD

Liquid Crystal Display. A type of display which makes images by controlling the orientation of crystals in a crystalline liquid.

Lithium ion Battery

A type of rechargeable battery which has a high power-time life for its size and is not subject to the memory effect as Nickel Cadmium batteries.

LPT Port

Line Printer Port. A way of referring to parallel interface ports because historically line printers were the first and latter the most common device connected to parallel ports.

MB

Megabyte.

Memory

A repository for data and applications which is readily accessible to your computer CPU.

MHz

Megahertz.

MIDI

Musical Instrument Digital Interface. A standard communication protocol for exchange of information between computers and sound producers such as synthesizers.

Modem

A contraction for MODulator-DEModulator. The equipment which connects a computer or other data terminal to a communication line.

Monaural

A system using one channel to process sound from all sources.

MPU-401

A standard for MIDI interfaces and connectors.

NTSC

National TV Standards Commission. The standard for TV broadcast and reception for the USA.

Operating System

A group of control programs that convert application commands, including driver programs, into the exact form required by a specific brand and model of microprocessor in order to produce the desired results from that particular equipment.

Parallel Port

A connection to another device through which data is transferred as a block of bits simultaneously with a wire for each bit in the block and with other wires only for control of the device not for transfer of data.

Partition

A block of space on a hard drive which is set aside and made to appear to the operating system as if it were a separate disk, and addressed by the operating system accordingly.

PCMCIA

A trademark of the Personal Computer Memory Card International Association. The Personal Computer Memory Card International Association is an organization that sets standards for add-in cards for personal computers.

Peripheral Device

A piece of equipment which performs a specific function associated with but not integral to a computer. Examples: a printer, a modem, a CD-ROM.

Pitch (keyboard)

The distance between the centers of the letter keys of a keyboard.

Pixel

The smallest element of a display, a dot of color on your display screen. The more pixels per area the clearer your image will appear.

POST

Power On Self Test. A program which is part of the BIOS which checks the configuration and operating condition of your hardware whenever power is applied to your Computer. Status and error messages may be displayed before the operating system is loaded. If the self test detects failures that are so serious that operation can not continue, the operating system will not be loaded.

Program

An integrated set of coded commands to your computers telling your hardware what to do and how and when to do it.

PS/2

An IBM series of personal computers which established a number of standards for connecting external devices such as keyboards and monitors.

RAM

Random Access Memory. A hardware component of your computer that holds binary information (both program and data) as long as it has the proper power applied to it.

RAM Module

A printed circuit card with memory and associated circuitry which allows the user to add additional memory to the computer without special tools.

Reset

The act of reloading the operating system. A reset erases all information stored in RAM.

Restart

See Reset.

Resume

To proceed after interruption. In your Computer this refers to returning to active operation after having been in one of the suspension states.

ROM

Read Only Memory. A form of memory in which information is stored by physically altering the material. Data stored in this way can not be changed by your Computer and does not require power to maintain it.

SDRAM

Synchronous Dynamic Random Access Memory.

Serial Port

A connection to another device through which data is transferred one bit at a time on a single wire with any other wires only for control of the device not for transfer of data.

Shadow RAM

A technique of copying data or applications stored in ROM (Read Only Memory) into RAM (Random Access Memory) for access during actual operation. RAM is much faster to access than ROM, however ROM contents are not lost when power is removed. Shadowing allows permanently stored information to be rapidly accessed.

SRAM

Static random access memory. A specific technology of making RAM which does not require periodic data refreshing.

Status Indicator

A display which reports the condition of some portion of your hardware. On your Computer this is an LCD screen just above the keyboard.

Stereo (audio)

A system using two channels to process sound from two different sources.

Stroke (keyboard)

The amount of travel of a key when it is pressed from resting to fully depressed.

Suspend

To make inoperative for a period of time. Your notebook uses various suspension states to reduce power consumption and prolong the charge of your battery.

SVGA

Super VGA.

S-Video

Super Video. A component video system for driving a TV or computer monitor.

System Clock

An oscillator of fixed precise frequency which synchronizes the operation of the system and is counted to provide time of day and date.

TFT

Thin Film Transistor – A technology for flat display panels which uses a thin film matrix of transistors to control each pixel of the display screen individually.

UL

Underwriters Laboratories – An independent organization that tests and certifies the electrical safety of devices.

VGA

Video Graphics Array. A video display standard originally introduced by IBM with the PS/2 series of personal computers.

VRAM

Video Random Access Memory. A memory dedicated to video display data and control.

Write Protect

Prevent alteration of the binary state of all bits in a storage media. Example: all information on a device such as a floppy diskette; a block of space in a storage media such as a partition of a hard drive; a file or directory of floppy diskette or hard drive.

XGA

Extended VGA.

Zoomed Video

A PC Card port which allows notebook PCs to deliver full screen broadcast quality video through third party PC Cards, including TV tuners, video capture, and MPEG full-motion video.

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